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FORTUNE

NEW DEBATE ABOUT HARVARD BUSINESS SCHOOL

It's still rich and famous, but is it training the right kind of managers?

Superstar professor Michael Porter: Scholar, teacher, consultant, millionaire

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NOVEMBER 9, 1987 VOL. 116, NO. 11

FORTUNE

"I would never, ever become a full-time consultant. I would consider that ultimately terrible."

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"I perspire 99.9% of the time."

PAGE 88

"Have you noticed how much hugging is going on lately on Wall Street? We're checking to see if the other guy is bugged."

PAGE 97

"Some guys get their hair permed and go chase girls. I decided to start a company."

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"It's only recently begun to dawn on me the magnitude of what's happened to the North American gold industry."

PAGE 153

"Because of you and the Batra book I liquidated all my assets. And now here I am in the gutter."

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THE EDITOR'S DESK

ROB KINMONTH

Kiechel returned to his alma mater in search of truth about Harvard Business School.

THE BEST FORTUNE stories sometimes have strange origins. This summer Walter Kiechel, a member of our Board of Editors, was excerpting a book on Harvard Business School to run in the magazine when Dean John H. McArthur wrote to protest that the book was grossly unfair. No sooner had FORTUNE's researchers started checking the manuscript's facts than the publisher withdrew the book from our consideration.

But Kiechel's interest was already piqued. As a graduate of both the Harvard Business and Law schools (classes of '77), he knew that change was afoot at his alma mater. Despite the B-school's long-standing pledge to produce top-flight managers for U.S. industry, an ever-increasing number of graduates were heading for Wall Street, shunning line jobs at the major corporations America relies on for competitive strength. Many faculty members seemed tacitly to endorse the switch. Says Kiechel: "I wanted to know what had become of their commitment to train general managers."

Kiechel interviewed more than 30 members of the Harvard Business School staff and the deans of other leading institutions, while reporter Mark Alpert got the perspective of alumni who graduated five and ten years ago. The results make for a fascinating cover story.

MICHAEL WOLF—VISUM

Taylor car-watching in Germany

To assess the future of the world auto industry, writer Alex Taylor III left his 1983 Toyota Corolla parked on a New York City street and set off on a six-country tour. That Taylor should have to travel so far says a lot about the world's largest industry. Despite protectionism, the business is becoming ever more global, and success will flow to those who design strategies to match. Taylor's nine-page report, starting on page 74, tells you who's winning, who's losing, and why.

Allan Demaree
EXECUTIVE EDITOR

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NEW DEBATE ABOUT HARVARD BUSINESS SCHOOL

The West Point of capitalism used to pride itself on turning out future CEOs. But now most of its MBAs head for Wall Street or consulting. What went wrong?

■ *by Walter Kiechel III*

Nobody has ever accused the Harvard Business School of being an ivory tower, a refuge for woolly-minded scholars out of touch with real life. No, this is a worldly institution and a great worldly success. It has produced scores of chief executives for America's leading corporations, including Ford, Johnson & Johnson, Xerox, and Colgate-Palmolive. Companies from six continents send their top people to its executive courses for just the right finishing, at prices up to $22,500 for the 11-week Advanced Management Program. Employers from Wall Street to Silicon Valley flock to Boston to hire recipients of the school's master in business administration degree, offering starting salaries that sometimes exceed $100,000 a year. Nearly 7,000 of the brightest college graduates in the U.S. compete for 800 places in each MBA class.

The professors, too, are a worldly crew. Mercedes and BMWs dot the faculty parking lot. A controversial new book, *The Empire Builders*, accuses the dons of grubbing for power and money in all sorts of unseemly

Insignia on the jerseys *of the Harvard Business School crew, which races other clubs on the Charles River, say it all about the students' goals.*

ways, such as using their positions to land consulting jobs and seats on corporate boards. Dean John H. McArthur denounces the "shabby, mean-spirited, and false manuscript" as being riddled with "hundreds of factual errors, invented quotations, and fabricated events." What the book does not attempt to do is address troubling questions about the school's role in fostering the competitiveness of American industry.

IN A FUNDAMENTAL way the Harvard Business School is growing more remote from corporate America: Increasingly its MBAs don't want to work there. Not in line jobs or for big companies, at any rate. This year, for the first time, an institution that has proudly proclaimed its mission as educating "general managers and business leaders," not "functional specialists or theorists," saw over half its graduating MBAs go into investment banking or management consulting (see chart). These two fields pay the highest starting salaries. Another 15% of the class headed off into venture capital, real estate, commercial banking, investment management, or other financial services. Less than 25% of 1987 MBAs took jobs with manufacturing companies, and most of these were staff, not line, positions.

A look at where graduates end up five or ten years out suggests that few subsequently move into the managerial mainstream. "Having just come back from my tenth reunion, I can say that essentially nobody from my class is on the path to running a large business," says a 1977 MBA who graduated in the top 5% of his class as a Baker Scholar. "The image of the business school is that it produces the captains of industry. But now it's producing the incredibly well-paid lieutenants of Wall Street."

A matter for concern? People like Donald Petersen, chief executive of Ford, think so. Petersen, a Stanford MBA, last year stirred a Harvard audience with his plea that the best and brightest seek leadership positions with America's big manufacturing corporations. Others point out that the largest industrial, retailing, transportation, and utility companies still account for more than two-thirds of the U.S. gross national product. If these enterprises are to fare well in the global competition, they will need the smartest possible managers at the helm.

Dean John H. McArthur *isn't worried.*

But why blame the lemminglike defection of MBAs in pursuit of the dollar on Harvard? The same situation confronts virtually all of the best business schools, though not always in the same proportions. Isn't the real problem greedy students? In attenuated form Harvard seems to buy that argument. "I've had students who said they really wanted to go out and get line jobs," says Robert H. Hayes, an expert on manufacturing and coauthor of the famous 1980 article "Managing Our Way to Economic Decline." "Then salary offers came in. It's awfully hard for an MBA who is $20,000 in debt, living in shabby housing, and driving a clunky car to say to a spouse who has been working to support the family: 'I'll take the $40,000 job in Podunk, but I have an offer from Morgan Stanley for $60,000 with a $40,000 bonus.' "

REPORTER ASSOCIATE *Mark Alpert*

Blaming the students seems too easy, though, a variant on the old Hollywood rationalization: "We can't be better managed because the inmates are running the asylum." The business school, after all, chooses who gets in, determines what students are taught, and sets standards for everyone at the institution. If any business school is capable of turning out managers, it should be Harvard. The school has more money (an endowment of $250 million), a bigger faculty (180), and greater celebrity than any competing institution. It also produces more MBAs (Wharton graduates about 750 each year, Stanford a mere 310). Perhaps most important, Harvard has long emphasized the practical nature of the education it offered, an emphasis embodied in its commitment to the case study method. While professors at other schools lectured on the latest theory of consumer behavior, say, Harvard had students tackle problems from the real world, dissecting cases that reflected the difficulty, and excitement, of being a manager.

At least that was how case study was supposed to work. Cases, which used to put students in a manager's shoes, now frequently read more like a finance text. This may explain something about why Harvard no longer turns out so many people inclined toward general management. Together with other changes, it also helps account for why an institution whose graduates include Martin Siegel and some of the smaller fry in Wall Street's insider trading scandals has yet to get its act together to teach about ethics, notwithstanding 60 years of faculty wrestling with the issue and a recent multimillion-dollar gift from John S. Shad, MBA '49, aimed at furthering the effort.

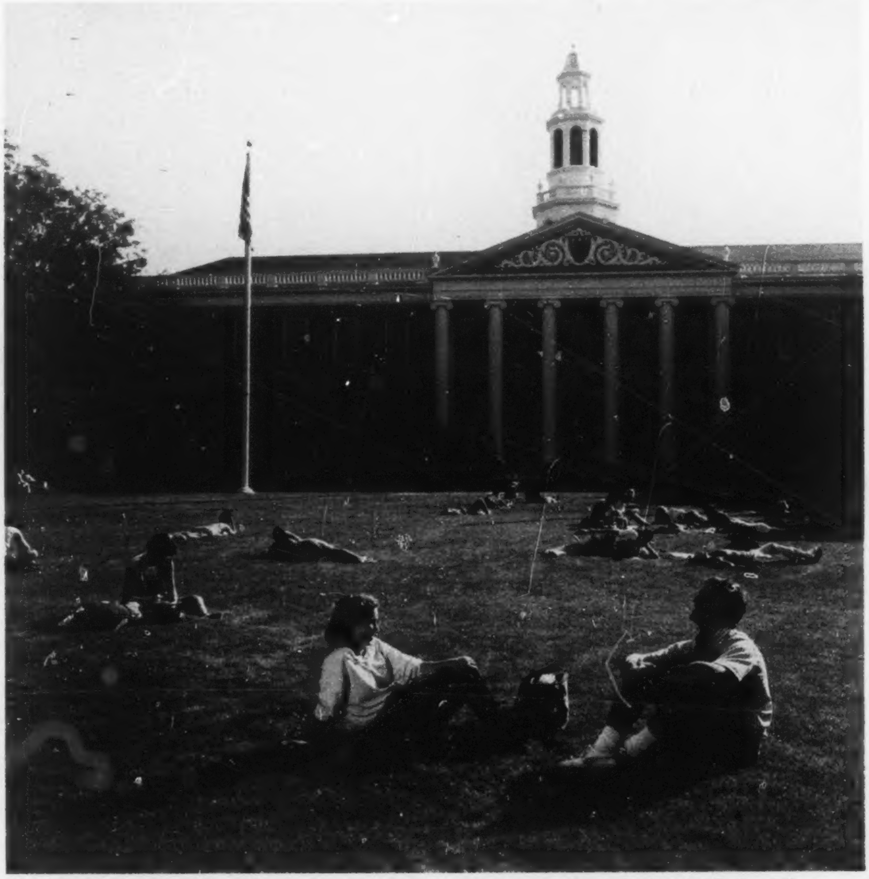
Dean McArthur says he is unworried by the trend in MBA placement, as it's known in the trade: "I think it's crazy where they're going, but we ought to just relax and enjoy it; it won't last long." McArthur, who used to be a finance professor, contends that the bubblelike expansion of investment banking houses, which has sucked so many MBAs into Wall Street, can't continue.

BUT OTHER strong trends are at work here. To a degree, Harvard influences the career choices of its graduates more than two years earlier, when it culls those 6,800 applicants down to the fortunate 800. The business school increasingly requires real-world job experience from the people it admits, and almost no one gets in straight from college anymore. The median age of this year's entering class is 26.1, up from 25.8 last year. In the school's view, these more seasoned types will be better able to resist the stampede to high-dollar jobs.

What school officials don't talk about as much, however, is where the students obtained their job experience: In 1987 nearly a quarter of the new class came from investment banking houses or management consulting firms. In recent times these outfits have heavily recruited undergraduates from prestigious colleges, put the new hires to work crunching numbers in jobs with a title like "research analyst," and

PHOTOGRAPHS BY ROB KINMONTH

then coached them on how to get into business school. So developed has the practice become that a former Stanford Business School admissions director, Kathleen Gwynn, has started a company devoted to counseling analysts on, for example, how to write a business school application. Her principal accounts: First Boston, Goldman Sachs, and Bain & Co., the Boston-based consulting giant.



Uncharacteristically relaxed, *students bag a few autumnal rays in front of Baker Library.*

When the former analysts arrive at Harvard, they and their new classmates encounter a recruiting blitz spearheaded by—who else—investment banks and consulting firms. The first offer is usually a summer job. The next year it's a permanent position, with a nice signing bonus attached. The word that drops from the lips of just about every faculty member in describing the competition among employers is "frenzy," as in "feeding frenzy." But Harvard isn't doing as much to curb the madness as some competing institutions.

The business school student newspaper recently carried advertisements for three upcoming speeches on campus by top investment bankers—two inviting "interested students" to receptions afterward—three ads announcing appearances by management consultants, and one full-page declaration that Booz Allen & Hamilton "looks forward to meeting first-year students" at a series of cocktail parties at a nearby hotel. This was the third week of the first semester. By Christmas, says one of Harvard's senior associate deans, the recruiting companies "know 500 students; they know our students better than we do."

Employers may also know that fully 30% of graduating MBAs go to work for the same outfit that gave them a summer job between first and second year. Through the end of one school year and into the next, the pressure on students builds, as the tomtoms tell of spectacular offers made to classmates. By the time spring of the second year rolls around, which ten years ago was the official recruiting season, the action is pretty much over, as some would-be employers have discovered to their dismay.

What does the business school get from all this, aside from a big challenge in keeping students faintly interested during their last months? Every year the placement office surveys members of the graduating class about their jobs. The glossy brochure, showing who goes where and the median salary graduates command in each industry, is given wide circulation. Presumably the eye-popping salaries encourage similarly superior individuals to consider applying to Harvard.

But the business school has a much more direct interest in seeing its students earn a lot of money. As recently as the early 1970s, it was hobbling along with an endowment of $30 million and maybe $1 million in annual gifts. In the interest of breaking even, the school began to rethink its fund raising, or the lack of it. Shortly after he became dean in 1980, McArthur put Professor Hugo E. R. Uyterhoeven in charge of fund raising. Uyterhoeven made such a success of it that around $18 million in gifts will come in this year, vs. about $4 million in 1980. Recalls Uyterhoeven: "We decided to go the alumni route. We found that companies aren't all that generous." The secret to alumni giving, the business school discovered, is tapping reunion classes, particularly the 25th reunion class, and the key to this is enlisting alums who give generously themselves and can put the arm on others to do likewise. Every 25th reunion class since 1980 has had an investment banker or a management consultant as its chairman or gift chairman.

A COLLAPSE in hiring by investment banks—or I-banks as some me-generation types on campus call them—thus might have repercussions that reach far beyond placement. Is such a collapse inevitable, as McArthur suggests? You can imagine the scenario: Financial markets decline, merger activity cools off, margins contract, and all those blue-suited gunslingers in lurid suspenders finally get what's coming to them.

Certain trends suggest, however, that even if investment banking suffers hard times, the hiring of top-flight MBAs may not fall off that dramatically. Investment banking looks increasingly like a new-products game. Who better to come up with the next winky-doo-backed security than a newly minted MBA, full of the latest financial esoterica and churning with ideas? Moreover, management consultants have learned that if they want to keep hiring Harvard MBAs, they must never, ever, lay off recently recruited graduates. Better to prune the tree further up, at the third- or fourth-year associate level. Despite ups and downs in the business, consulting's share of Harvard's graduating MBA class has hovered around 20% for ten years.

Harvard is already taking steps to correct the skew in its admissions policy, in ways that may eventually affect where students go. Two years ago it stopped requiring the GMAT, the business school equivalent of college boards, in part to reduce the importance of how adept an applicant is with numbers. Laura Fisher, the new admissions director, talks about the need for "strategic diversity" in making up an MBA class, and Harvard has begun to put out word on college campuses that analyst's programs are no longer the royal route to you know where. In fact, the school hints, it may limit the number of people it takes from such programs.

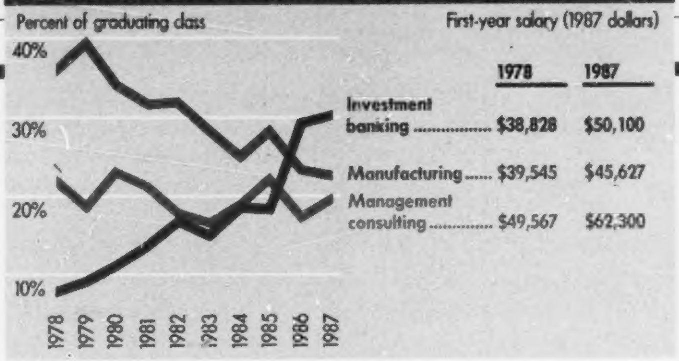
Some faculty members say they have tried to steer students away from the chase after money. "Our faculty is outrageous in what it says about Wall Street," observes Professor Joseph L. Bower, a senior associate dean. The problem is not what the professors say but what they do: Some are in fairly hot pursuit of money themselves. Knowledgeable critics of Harvard tell a story about a former professor there. Every year the man would be pictured in the faculty directory against a backdrop of empty bookshelves. If you visited his office, the story goes, you would find that it too was apparently unused: The professor was spending so much time on moneymaking activities outside that he was almost never there. Finally the dean, one of McArthur's predecessors, gave him a choice: Cut back on the outside stuff, or leave. He left.

The problem, or what faculty members prefer to call the "inevitable tension" between work inside the school and work outside it, continues. The business school pays senior professors as much as $112,000 a year, plus another two-ninths of their salary if they work over the summer. In their spare time they can earn considerably more than this. Some do, including Professor Michael E. Porter, probably the faculty member best known outside the school (see box).

Most of the faculty's outside work falls into one of four categories: consulting, teaching in corporate training programs, testifying as expert witnesses, or serving on corporate boards. Of late, teaching has become the hot ticket; a senior professor can command over $5,000 a day for teaching a corporate audience essentially the same cases he does back at Harvard.

In 1983 McArthur set up a faculty committee to review the school's guidelines on

WHERE THE MBAs WENT AND . . . HOW MUCH THEY MADE



First-year salary (1987 dollars)

	1978	1987
Investment banking	$38,828	$50,100
Manufacturing	$39,545	$45,627
Management consulting	$49,567	$62,300

Many more picked careers in investment banking, at the expense of jobs with manufacturing companies. Consulting held its own. Salaries are medians of what students got, except for manufacturing, where they are averages. Bonuses often raise the starting salaries of investment bankers to $70,000 or more.

The world's largest library of business *takes its name from George F. Baker, the school's first big donor and a friend of J. P. Morgan.*

outside activity. The committee recommendations, submitted a year ago, begin by affirming existing policy, the first principle of which is "A certain amount of consulting is good"; it keeps professors in touch with the business world and may uncover situations that can be written up as cases. The report goes on to express concern about the lopsided distribution of outside activity across the faculty. In a survey three years ago, 20% expected to do less than 15 days of consulting, not enough in the eyes of the committee. On the other hand, 10% expected to do 40 or more days—40 being the maximum supposedly allowed. The report advises caution in taking corporate teaching assignments. But it recommends leaving the limit at 40 days a year, even though a survey of the faculty revealed that 85% believed tenured professors do too much outside teaching. Other recommendations: Clarify reporting of outside activities and have faculty members discuss with the dean any tough cases, such as the opportunity to serve on more than four

THE CASE OF MICHAEL PORTER, SUPERSTAR

■ Professor Michael Porter, 40, exemplifies much of what's best and some of what's troubling about the Harvard Business School. He is an engaging teacher, an indefatigable researcher, and a fount of ideas that appeal to managers. He has also never been reluctant to make a buck from those ideas, in ways, critics charge, that sometimes detract from his role as a professor.

The son of a U.S. Army officer, Porter earned an undergraduate degree in mechanical and aerospace engineering from Princeton, where he was an NCAA all-American in golf. He went on to take an MBA from Harvard (high distinction, Baker Scholar) in 1971 and then, in 1973, a Ph.D. from the department of economics across the river. He joined the business school faculty that year, and became a full professor in 1982, not without opposition from old-line faculty members who were uncomfortable with his work.

What Porter does is to examine corporate strategy from the perspective that earned him his economics Ph.D. Why does one player in an industry come out a winner, another a loser? Porter's writings abound with concepts that can be used to analyze a company's competitive situation—for example, the successive steps by which a business creates value. His courses have consistently been among the most popular at the business school, and his books are a big hit too. *Competitive Strategy,* published in 1980, has sold well over 200,000 copies; sales of *Competitive Advantage,* published in 1985, are about 120,000.

Celebrity—and wealth—came on the heels of *Competitive Strategy.* "What people forget," Porter says, "is that until 1980 I didn't get any calls. I spent seven years holed up in the library doing research." Then his phone began to ring, and ring, as companies sought his advice. Because he didn't want to manage his own consulting business, Porter worked, or tried to work, with a succession of firms. "I would negotiate how an assignment was going to be done," he explains, "but then the people working on it would go off in their own direction."

A frustrated Porter saw a chance to call more of his own shots in 1982, when a faculty colleague, Mark Fuller, decided to leave Harvard to start a consulting firm. Fuller asked Porter to become a principal in the Monitor Co. (or TMC), and Porter agreed, on certain conditions: "I was to have no administrative role. I wouldn't go to meetings. I would not recruit a single person; in fact, I told Mark that he couldn't tell anyone I was involved. And I said I would never meet with any students about TMC."

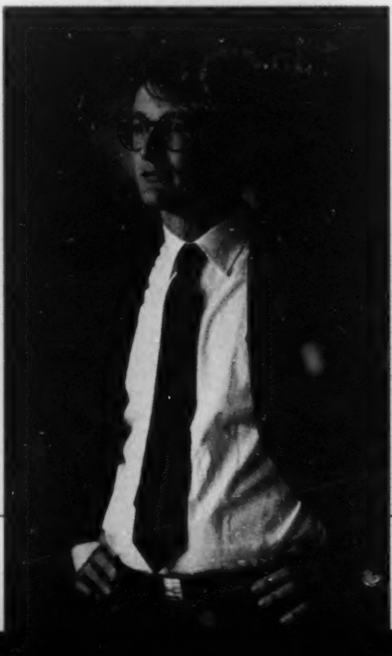
Largely on the strength of Porter's contacts, TMC took off. It now has about 175 professionals in five offices around the world. Clients include AT&T, McGraw-Hill, and Italy's Montedison. Porter says that he participates in "major meetings," provides "conceptual direction," and exercises "quality control," reviewing the efforts of consulting teams.

And how does all this square with the business school's strictures on outside activity? Porter adamantly maintains that he abides by the rules, devoting only 20% of his time to outside work. The tougher question may attach to a provision of the guidelines that cautions faculty members against any managerial or ownership positions "representing a substantial portion of one's net worth." While Porter won't talk about his compensation from TMC, consultants at other firms estimate that a person similarly situated might easily make $500,000 a year. When asked about the net worth test, Porter, who was on the faculty committee that reviewed the guidelines, replies: "When I started with the firm, it wasn't worth anything." Would he ever leave academe to work at the business full time? "I would never, ever become a full-time consultant. I would consider that ultimately terrible."

Porter, whom one colleague described as "a prime candidate for burnout," will return to the classroom next spring, after a generous 18-month vacation from teaching. He has hardly been idle during that time. He served, for free, on the President's Commission on Industrial Competitiveness, and he has been doing research for a new book on the competitive strengths of different nations.

The peripatetic professor shows few signs of slowing down, even though his wife gave birth last summer to their first child, a daughter. The only thing that bothers him, he says, is the carping of other faculty members, or, as he puts it, "people bitching and moaning about things that are irrelevant." Sometimes the sniping gets so bad he goes to talk to his friend John McArthur. With a laugh, Porter recounts the dean's advice: "John just says: 'Hey, throttle back, do a half-assed job, and it'll stop.' "

What kind of role model is he?



ANTHONY EDGEWORTH

HARVARD BUSINESS SCHOOL'S 1987 CASH FLOW

SOURCES in millions		**USES** in millions	
Endowment income	$30	Instruction	$40
MBA tuition	$27	Additions to endowment	$30
Executive program fees	$23	Research & development	$25
Publications	$22	Publications	$20
Gifts	$18	Renovation	$5
New debt	$0	Student loans	$0
TOTAL	**$120**	**TOTAL**	**$120**

The school moves in and out of the debt markets but didn't borrow this year. Funds for research go 40% for developing cases, 60% for straight scholarly work. In 1987 the payback from student loans equaled money lent out.

boards at once. Properly handled, all this "will permit professors . . . to earn income supplementary to University salaries that will permit a good standard of living."

Ten years ago a joke among students had it that certain professors used their faculty salary to pay a small portion of their tax bill. These days some MBA candidates want to emulate their professors. They hope, for example, to go to work for a consulting firm that Michael Porter helps run. But who on the faculty holds up the example of the general manager? "We all do," say a surprising number of professors, "in the cases we teach."

Their answer barely skims the surface of another profound change at the business school. Who are these professors and what do they talk about in the classroom? In the old days faculty members came up through the ranks of Harvard's doctor in business administration program. But as bright MBAs increasingly chose high-paying jobs over graduate study, that pipeline pretty much dried up. The number of new students seeking the DBA has dropped from 60 a year in the 1970s to nine or so recently. And McArthur faces the necessity of replacing a third of his senior faculty in the next decade.

In response he has taken several steps. He has brought in eminent faculty members from other business schools and given them full professorships. He has set up joint Ph.D. programs, working, for example, with the departments of psychology and sociology to develop a Ph.D. in organizational behavior. Increasingly too he has gone outside to recruit Ph.D.s in the business school disciplines—marketing, say, or finance.

WHAT ALL of this translates to is a faculty that is more discipline based, more focused on scholarship in a particular specialty than in writing cases. Aspirants to tenure, instead of getting a Harvard MBA and then serving an apprenticeship developing cases under a senior professor, today are more likely to have started out producing scholarly articles for the *North Frisian Journal of Theoretical Microeconomics*. During their perilous navigation of Harvard's tenure track—only two or three out of ten make it—they understandably want to keep their scholarly credentials up to date, against the day they have to seek employment at another business school, most of which emphasize the disciplines even more than Harvard.

Cases are still the basis of class discussion at Harvard, and new faculty members are still given considerable coaching in how to teach them. But to use case writing as a primary means of research, to devote months to trying to capture all the twists and turns of an actual manager's experience? That won't get you anywhere in a discipline-based world.

Cases themselves have changed as a result. Classically they began with a manager in a tough spot ("Lemington Burford sat in his darkened office and reflected on the events that had brought his company to this sorry pass") and ended with a pointed question ("What should Burford do?"). The teacher led students through an aggressively Socratic dialogue—"You think he should cut production? But if he does, what about . . ."—that required them to back up their recommendations with reasons. Done right, the experience offered an exhilarating

Executive education programs *make Harvard a lot of money and often result in consulting jobs for business school professors.*

Peter Barron
Rick Wackenhut
Orlando Ferreres
Bob Scharp
Bill Nairn
Jun Inokuchi

sense of what it was like to be a manager.

Rosabeth Moss Kanter *left the faculty at Yale to teach at Harvard.*

Cases now more frequently look like what once would have been considered background material—a description of a theory, a list of procedures, someone's framework for analysis. ("Burford wondered whether the capital asset pricing model might not be appropriate here. The capital asset pricing model is . . .") Asked how his approach to cases has changed, a marketing professor replies: "I've learned to write technical notes that look like cases."

The evolution of case studies has in turn affected the school's curriculum. For as long as anyone can remember, Harvard's courses have mostly bubbled up from its faculty's interests: A professor would become intrigued by something and do research on it. If he stayed interested, he or a researcher might write cases on the subject, which might serve as the readings for a new second-year elective course. If the course proved popular with students—and Harvard's faculty is extremely market driven in this respect—bits of it might make their way into a required first-year course.

What MBA candidates have wanted of late are financial formulas, mathematical models, and analytical tools—the kind of stuff consultants and investment bankers use. In the past ten years such materials have made their way into the classroom and altered the curriculum. Consider, for example, how Business Policy I turned into Competition and Strategy.

Michael Jensen, *another transplant, still teaches at Rochester too.*

Ten years ago BP I, as it was known, was the only required course in the first semester of the second year. It treated corporate strategy, in the genteel tradition of those days, not as a set of formulas but as the mission of the company, its distinctive competence, reflecting the values of its managers. The course was not particularly popular.

About this time a young assistant professor named Michael Porter, the ink still relatively damp on his Harvard Ph.D. in the economics of industrial organization, wrote a technical note "On the Structural Analysis of Industries." The note became assigned reading in BP I, "as a way of making the process more rigorous," Porter says. He then went off to teach in one of the executive programs and began writing cases. These, centering on concepts such as "barriers to entry" (high start-up costs, say, or established brand names), formed the underpinnings of a second-year MBA elective he introduced in 1977, Industry and Competitive Analysis. It was an immediate smash, in some years attracting 400 students. Ideas from the course began filtering into BP I.

Finally, in 1983, McArthur persuaded Porter to take over Business Policy I, which had been shifted to the spring of the first year. Porter describes what happened next: "I took out all the material on the general manager, and on the values of society and the manager. It became a course in strategy, not in general management." All that remained was for BP I's name to be changed, which happened in 1986.

So what if Harvard isn't turning out MBAs who will become general managers? As Professor Joe Bower points out: "A lot of restructuring is being done by consultants," not to mention investment bankers. Many of the consultants will eventually become venture capitalists, investing in and helping to guide new enterprises. Some faculty members think that is just nifty. Says Rosabeth Kanter, an expert on the often hidebound ways of large corporations: "Some large companies are still so bureaucratic that I'm not sure I could recommend that my students go to work there." Or, as another Baker Scholar, class of 1982, puts it: "This captain of industry stuff—is he a person willing to work for 30 years to be chairman of GM and deal with the bull—?"

Yes, as a matter of fact. Also, increasingly, the person who tries to cut through the bull at GM and change the hidebound ways. Harvard Business School professors talk and write eloquently of the challenges facing business: globalization, an accelerating succession of new technologies, the need to manage organizations of unprecedented scale. But who, in 20 or 30 years, will be responsible for meeting these challenges at the largest companies, at the end of the day, when the people in blue suits have flown back to New York or Boston? Probably not Harvard MBAs, unless the business school rededicates itself to its historic mission. F

COMPETITION

WHO'S AHEAD IN THE WORLD AUTO WAR

Ford is up, GM is down, Honda is charging and—what's this?—Peugeot is coming from nowhere.

■ *by Alex Taylor III*

MICHAEL WOLF—VISUM

Shopping the whole world *in an increasingly*

ITS MOST CELEBRATED executive is an American (Chrysler's Lee A. Iacocca), its most prestigious brand is European (Mercedes-Benz), and its most feared competitors are the Japanese (many of them). Once as provincial as a neighborhood Chevy dealer, the world's biggest industry is increasingly global in scope and—contrary to yesterday's conventional wisdom—growing ever more diverse and complex. Some 175 automakers now produce more than 45 million cars, trucks, and buses a year, often shipping them to customers halfway around the globe. The sales add up to something like $384 billion a year—2.1% of the world's GNP.

Though protectionism keeps the war from being the free-for-all it should be, success now belongs to companies that plan and execute strategies for the world. Mired in North America, where it is steadily losing ground, General Motors is struggling to develop such a strategy, while archrival Ford Motor Co. is reaping the benefits of its long years as an overseas power. Fast-rising Honda plans to use Ohio as the base for exports to other parts of the world, including its home country.

The new internationalism has created a golden age for car buyers everywhere. As they shop the world, they are demanding and getting ever better design, performance, and comfort. The most successful manufacturers today build cars with Japanese quality and European-style handling that coddle their passengers in the mass-market opulence America pioneered. With the heavy slogging on fuel economy and exhaust emissions behind them, engineers are delivering advances in technology that enhance drivability, handling, performance, safety, and, yes, further fuel economy. Among them: multivalve engines, increasingly sophisticated electronic engine controls, antiskid braking, and automatic electronic suspensions.

So today Japanese queue up to buy some 15,000 BMWs a year, enough to make the German luxury car the second-best-selling import in Japan after Volkswagen. Europeans cannot get enough Jeep Cherokees, produced in Toledo, Ohio (10,000 were sold to them last year). In the U.S., Pontiac's hottest-selling car is the LeMans, a version of the Opel Kadett designed in Germany and built in Korea (1988 estimated sales: 110,000). Sweden's Saab and Volvo attract a loyal core of well-heeled enthusiasts, as do other low-production makers of high-class automobiles in Britain, West Germany, and Italy. And the car that U.S. customers find most satisfying to own is a luxury Japanese brand that made its debut only 18 months ago: the Honda Acura (see table).

No one was predicting this abundance a few years ago. Autophobia was ascendant, and a gloomy consensus prevailed about the future of the industry in an energy-short world. Everybody would be driving spartan econoboxes. Competing on price in a commodity market, high-volume manufacturers would enjoy indisputable cost advantages. The 20 or so leading automakers would be subsumed into a half-dozen megaproducers churning out "world cars"—look-alike vehicles for customers from Ypsilanti to Yokohama.

Instead the competitors have remained many, and if anything, sheer size seems less of an advantage than it used to be—or sometimes even a hindrance. Prosperous and freed from worries about gas shortages, car buyers once again indulge their passions for style, speed, gadgetry, and panache. Fortified by this demand and prodded by new competition to get costs under control, the industry recovered quickly. Today the world's major automakers are by and large far stronger than they were only a few years ago.

They will need that strength and more in years to come. For carmakers, unlike consumers, the golden age is likely to be fleeting. Last year some 488 million vehicles roamed the earth. Western Europe was the biggest producer, followed by the U.S. and Japan. But the worldwide total also includes

REPORTER ASSOCIATE *Stephen J. Madden*

ecumenical auto industry, these Germans scrutinize a Mazda RX-7 Turbo at the Frankfurt auto show. Japan won 18% of West Germany's market in August.

42,116 Otoyal & Tofas from Turkey, 22,022 cars carrying the name of Hindustan Motors in India, and 13,870 built by Yue Gyan Machinery Manufacturing Co. of Taiwan.

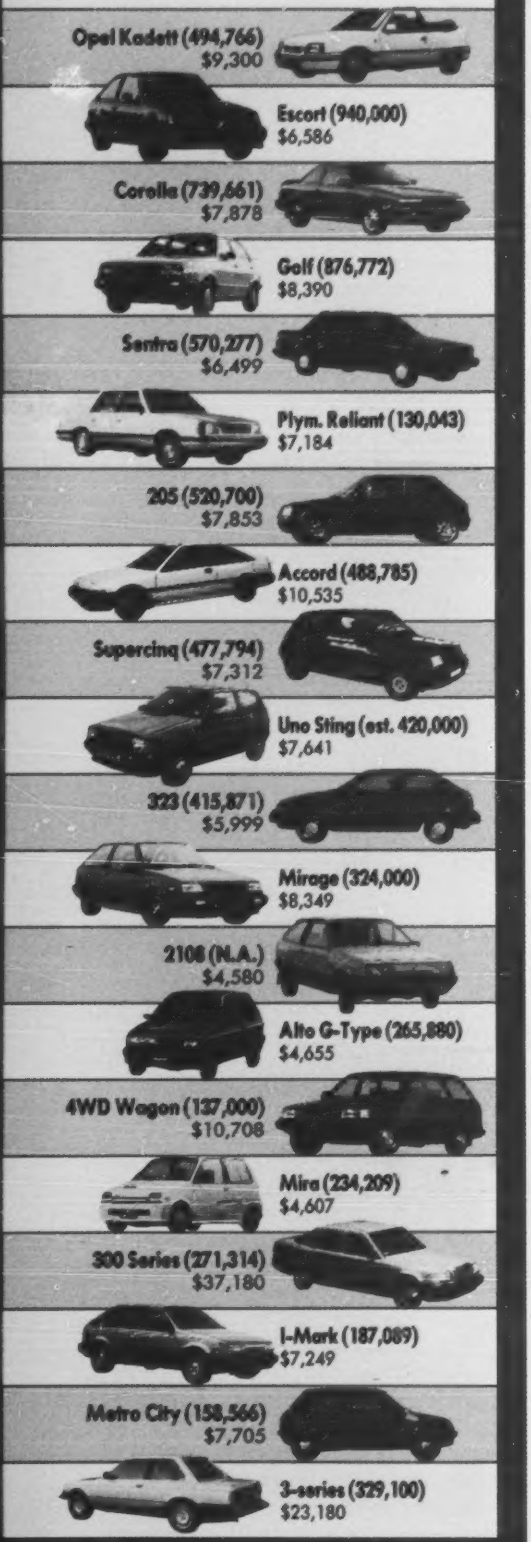
BY THE 1990s there will be far less room for new cars than manufacturers would like. Automakers are not retiring old factories as quickly as they add modern ones. Europe can already build about two million more cars a year than it needs; so can Japan. Assuming as most experts do that demand will grow 1% to 2% a year, the globe will soon be awash in production capacity. GM Chairman Roger Smith, who pays attention to these things since GM accounts for 18% of the world's auto production, worries that overcapacity will reach six million units by 1990 and perhaps go as high as seven million. The U.S. alone will have 2.5 million units of unused production capacity. That is enough empty factory space to build as many cars as Ford does.

Even those figures are low if social, economic, or ecological trends develop adversely. Researchers at Volkswagen, for instance, worry about what happens if highways collapse in paralyzing congestion—it may be happening already in Los Angeles—or whether thousand-year-old European cities can stand any more traffic at all. More imponderable but perhaps also more likely: What will be the effects of the next oil shortage and what will happen to gas prices?

Not everyone agrees that growth will be limited. Toyota President Shoichiro Toyoda, for one, expects new technologies and sharp competition to bring prices down and stimulate more demand than expected. Interviewed recently in Toyota City, he predicted that the worldwide market will grow 2% to 3% a year. Though Toyoda's projections ap-

THE WORLD'S TOP 20

AUTOMAKER Headquarters	1986 UNIT SALES 10-yr. growth rate	WORLD MARKET SHARE	PRICE RANGE	WHERE THEY BUILD N. AMERICA	S. AMERICA	W. EUROPE	E. EUROPE	AFRICA	ASIA	AUSTRALIA/N.Z.	HOW THEY ARE DOING
GENERAL MOTORS United States	8,163,438 −1.0%	18.1%	$5,495-56,533	■	■	■			■	■	Broadest price range, but venerable policy of "a car for every pocketbook" has not preserved sales.
FORD United States	5,984,081 −0.9%	13.3%	$6,586-26,008	■	■	■			■	■	About 40% of production in high-profit trucks. Global plans depend on tricky engineering coordination.
TOYOTA Japan	3,689,212 3.1%	8.2%	$5,848-23,810	■	■				■	■	Controls 42% of home market. World leader in high-output multivalve engines, installed in all Corollas.
VOLKSWAGEN West Germany	2,757,793 7.2%	6.1%	$5,690-23,090	■	■	■	■				Golf more popular than ever in Europe, but flounders in U.S., where the cars are considered expensive.
NISSAN Japan	2,700,000 0.77%	6.0%	$6,499-18,199	■	■	■		■	■	■	First Japanese company with plants in U.S. and Europe, recovering from long slump.
CHRYSLER United States	2,198,415 −0.6%	4.9%	$5,499-14,910	■							Negative ten-year growth masks turnaround of the decade. Gets a big lift from minivans it pioneered.
PEUGEOT France	1,724,200 8.2%	3.8%	$5,100-23,750		■	■	■	■	■		Its recovery has astounded European competitors, but it hasn't yet boosted U.S. sales beyond 20,000.
HONDA Japan	1,582,000 9.0%	3.5%	$6,095-28,291	■		■		■	■	■	Fastest-growing in top ten; phenomenal entry into luxury market with Acura. Not yet strong in Europe.
RENAULT France	1,574,964 1.2%	3.5%	$6,399-12,899	■	■	■	■	■	■		Now profitable but fragile; abandoned U.S. manufacturing dream. French government may sell it.
FIAT Italy	1,476,422 2.3%	3.3%	$4,585-21,000		■	■	■	■	■		Has 60% of Italian market. Trying to revive Lancia, develop Alfa-Romeo as performance car for export.
MAZDA Japan	1,405,170 −1.5%	3.1%	$5,999-24,425	■					■		Leading Japanese import in West Germany. Unique Wankel engine powers RX7 sports car.
MITSUBISHI Japan	1,270,700 5.0%	2.8%	$3,571-30,714			■			■	■	Blurred image in U.S. because of distribution through Chrysler dealers as well as own. Quirky styling.
LADA U.S.S.R.	1,100,000 −1.5%	2.4%	$4,198-5,344				■				One-quarter of production exported. New model, replacing 20-year-old Fiat design, due in 1988.
SUZUKI Japan	900,746 14.1%	2.0%	$3,103-9,551						■	■	U.S. sales of its Jeeplike $8,000 Samurai are booming. Will build minicars with GM in Canada by 1989.
FUJI (SUBARU) Japan	634,000 10.1%	1.4%	$5,700-17,500					■	■	■	Sales of its Subarus have been hard hit by rising yen. U.S. plant, built with Isuzu, will open in 1989.
DAIHATSU Japan	592,599 6.4%	1.3%	$3,393-15,834			■		■	■	■	Competes at low end against Third World cars. Ninth and last Japanese carmaker to enter U.S. market.
DAIMLER-BENZ West Germany	591,000 0.13%	1.3%	$27,430-70,600		■	■		■			Cars favored by the wealthy in the U.S., taxi drivers at home. Some 25% of sales from trucks and buses.
ISUZU Japan	526,244 4.5%	1.2%	$7,459-14,919						■		Has won distinction in U.S. with wry ad campaign that makes patently impossible claims.
ROVER GROUP Britain	472,490 −1.2%	1.0%	$6,557-31,148			■					Last British mass-producer; best-selling Metro designed by Honda. Lost money pretax for eight years.
BMW West Germany	446,109 4.5%	1.0%	$23,180-55,950			■					Only pure luxury manufacturer in top 20. Expensive new models selling very well in U.S.



BEST-SELLING MODEL (UNIT SALES)	Base price
Opel Kadett (494,766)	$9,300
Escort (940,000)	$6,586
Corolla (739,661)	$7,878
Golf (876,772)	$8,390
Sentra (570,277)	$6,499
Plym. Reliant (130,043)	$7,184
205 (520,700)	$7,853
Accord (488,785)	$10,535
Supercinq (477,794)	$7,312
Uno Sting (est. 420,000)	$7,641
323 (415,871)	$5,999
Mirage (324,000)	$8,349
2108 (N.A.)	$4,580
Alto G-Type (265,880)	$4,655
4WD Wagon (137,000)	$10,708
Mira (234,209)	$4,607
300 Series (271,314)	$37,180
I-Mark (187,089)	$7,249
Metro City (158,566)	$7,705
3-series (329,100)	$23,180

pear optimistic, some other experts foresee similar trends. In the U.S. particularly, says David Fubini, a McKinsey & Co. automobile strategist, "excess capacity will bring significant price pressure to bear on all market segments except the highest end."

The majority remain unconvinced of the falling-prices, rising-demand scenario. Their views are expressed in the *Delphi IV Forecast and Analysis of the U.S. Automotive Industry Through 1995,* the latest in a series published every three years by the University of Michigan's Transportation Research Institute. Looking at the U.S. market, the more than 225 auto executives, academics, and other experts polled conclude that the median retail sales price of a U.S.-made car in constant 1986 dollars will rise 19% from 1985 to 1995, to $13,800. Imports will move up to a median of $14,700 from $12,600.

One factor behind the climb will be increased use of high-technology components. Another: consumer demand for large and sporty cars. Researchers such as James Womack at MIT add that manufacturing technology takes a long time to pay off in lower production costs, and that carmakers will continue to turn out cars laden with options. To be sure, at the low end of the market increased U.S. production by Japanese manufacturers will help hold down prices—even as cars from South Korea, Mexico, and Brazil provide price discipline for the Japanese. But the Delphi group foresees nothing that would raise the growth of world demand above 2%.

If the consensus view proves correct, the next decade will be difficult indeed for established manufacturers. The Delphi group, for example, figures that size alone will keep General Motors at the top of the world's automakers, though the company's output will shrink from 6.1 million cars in 1984 to six million in 1995. Ford and Chrysler will gain ground, but not as much as three Japanese companies: Toyota up 17%, Nissan up 22%, and Honda Motor up 55%. Honda, at 25 the world's youngest major car producer and the eighth-biggest, could vault past Chrysler into the ranks of the top six, close on the heels of Nissan and Volkswagen.

Five years ago auto experts were waiting for less developed countries to burst into the world car market like little Japans. They are still waiting. The major producers have had some success building cars for export in Mexico and Brazil, but native automakers are struggling. With a list price of $3,990, the Yugoslavian-built Yugo meets only minimum standards in the U.S. for performance and quality, and only some 40,000 have been sold this year. As an MIT report points out, less developed countries cannot easily leap into the world arena as producers of high-technology components. And aside from low wages—which will become increasingly unimportant as automakers automate—they have no special advantage.

Even Korea's Hyundai, which sold 261,392 cars in the U.S. last year, is limited. Hyundai is scrappy—it sent 20 engineers to the Frankfurt auto show this fall to evaluate the competition—but its executives concede that the in-house engineering and supplier network it needs to develop export models beyond its current offering is lacking. Mitsubishi supplies its car designs, and such vital components as air conditioners and tires come from overseas suppliers.

The Third World may yet become an important market. Analyst Maryann Keller of the investment bank of Furman Selz Mager Dietz & Birney thinks that new producers in Asia, South America, and Eastern Europe will be making 20.4% of the world's cars by 1997, up from 12.5% in 1986. But few of the vehicles from Asia and South America will be sophisticated enough to sell in the West, and the home markets in most less developed countries are, well, hard to develop.

YESTERDAY'S received wisdom has also fallen short in its prediction that Western Europe's old-line manufacturers, doddering in the early part of the 1980s, were falling behind the rest of the world. Buoyed by a strong economy, they set a record in 1986 by making 12.8 million cars and are headed for 13 million this year, not to mention unprecedented profits. Fiat, which has worked out its problems with Italy's fractious labor unions and is now Europe's low-cost producer, is jousting for leadership with Volkswagen, the world's leader in assembly line automation. Even such chronic money losers as General Motors of Europe and Renault will show a profit this year. Penny-pinching Jacques Calvet, Peugeot's colorful boss (see box, page 86), has brought his company practically back from the dead. Peugeot is more than a million units behind Volkswagen right now, but Calvet promises that it will be Europe's leading producer in five years. He also plans to more than triple sales of its higher-priced cars in the U.S.

The Europeans' success owes as much to protectionism as to industriousness and ingenuity. Japanese imports are limited to 2,500 a year in Italy and only 3% of the market (about 57,000) in France. Even so, Japanese cars now account for more than one in every ten sold in Europe. Only the Germans give the Japanese virtually free access, and the results are disconcerting even to these aristocrats of the auto industry: Japan grabbed 18% of the German market in the month of August.

By 1992 the remaining trade and tax barriers between Common Market countries are to be dissolved. European automakers will be competing more vigorously than ever with each other. But the Japanese are not likely to be granted equal privileges. VW Chairman Carl Hahn said recently, "I consider simply opening the market unnecessarily dangerous, given the excess global capacity."

The betting is that informal barriers, similar to those that exist in the U.S., will be erected to limit Japanese imports. So the Japanese company best positioned is Nissan, which got a head start over its countrymen by building a plant in England that will turn out 100,000 Nissan Maximas by 1991. Maryann Keller, however, suspects other Japanese producers may try to use Eastern Europe as a low-cost assembly base, avoiding the barriers. She thinks the Common Market countries will be slower to restrict vehicles built in their own backyards.

IN THE NORTH AMERICAN market, everybody's favorite battleground, the Japanese will have erected ten plants producing 2.5 million cars by 1990, either separately or in partnership with U.S. companies. That's the equivalent of adding another company twice the size of Chrysler. But it's GM that has the most to lose. Its market share has fallen to 37% from 42% just a year ago, and the Delphi experts figure the company will be fortunate to hold that much even if it succeeds in slashing bloated costs and making better cars.

GM's main problem is that its enormous size has become a hindrance rather than a help. It alone among the world's automakers offers a full range of models in five different lines. No other company has more than two, and Toyota, GM's biggest Japanese competitor, has only one. Acknowledging that confusion among car buyers about the differences between, say, a Chevrolet and a Pontiac, has depressed sales, GM has been trying to create separate identities for its different divisions.

The company's size no longer gives it the leverage of manufacturing efficiency. Relying on the assumed advantage of vertical integration, GM makes about 70% of the parts it uses in its cars, but it has found that rivals can buy from suppliers with lower costs and often higher quality. According to John Krafcik, an analyst for the international automotive program at MIT, the weaknesses became embarrassingly evident when GM began making cars two years ago with Toyota in Fremont, California. Initial shipments of wiring harnesses from GM's Packard Electric Division were unusable, and Packard had to station an engineer at the plant full time to correct the problems. Krafcik says other GM-owned parts makers were suspected of treating shipments destined for the Fremont plant with special care in segregated areas using handpicked workers. So GM may have been in the odd position of treating its own divisions worse than the joint venture.

Meantime other automakers are learning how to make profits on short production runs, spinning out cars at low volumes to satisfy a variety of tastes. Chrysler, for instance, can build four different cars at its Sterling Heights, Michigan, assembly plant, which has a capacity of 250,000: the Chrysler LeBaron GTS, the Dodge Lancer and Shadow, and the Plymouth Sundance. The key is using flexible manufacturing techniques in order to develop what are known as economies of scope—the capacity to satisfy diverse customer wishes without adding new facilities.

Automakers are finding varied ways to be flexible. Japanese manufacturers emphasize programmable robots that can do different tasks. At Honda's teeming plant in Sayama, one hour from Tokyo, for example, cars are assembled with steering gear on either the right or left side without upsetting the production flow. In Europe, France's Peugeot and GM's Opel are enthusiastic boosters of automatic guided vehicles, known as AGVs. These electrically powered devices trundle partially completed cars individually from one workstation to another, allowing plant managers to design a day's assembly schedule in units of one rather than blocks of 100.

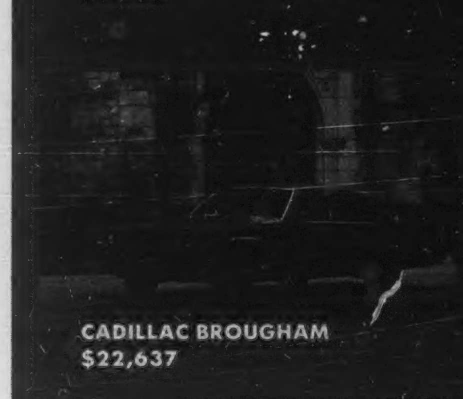
To make the most of their resources, automakers are increasingly linking up with other producers to develop new technologies, components, or even cars. Volkswagen secures such ventures with the sure-handedness of a Lothario. It now has ties to no fewer than 11 other companies, including Nissan, Volvo, Daimler-Benz, and Porsche. Its latest, 75% ownership of SEAT, the Spanish manufacturer, gives it an advantage in one of Europe's last uncrowded markets.

Only Honda, among the world's major automakers, shuns alliances. It has just one, an arrangement to design cars with England's Rover Group. Honda President Tadashi Kume (see box, page 88) insists that

THE CARS THE CUSTOMERS LOVE

MAZDA 323
$8,299

SUBARU STATION WAGON
$9,208



CADILLAC BROUGHAM
$22,637

WHICH ARE the world's most satisfying cars to own? Arguably, the ten shown here. For automakers everywhere, the U.S. market is not only an important sales arena but also the great laboratory of consumer opinion. Nowhere else do as many makes joust fender to fender for car buyers' attention. To find out what owners think, carmakers turn to the J.D. Power & Associates market research firm. Each August they eagerly await the publication of Power's Customer Satisfaction Index; this year's version reflected over 21,000 owners' views about their experiences. The final index is the aver-

ALAN LEVENSON

HONDA CIVIC
$9,038

PHILIP SALTONSTALL—ONYX

MERCEDES-BENZ 420
$54,050

JOHN MADERE

TOYOTA TERCEL
$5,848

ACURA INTEGRA
$10,039

8 **NISSAN MAXIMA**
$16,849

9 **JAGUAR XJS**
$39,700

10 **MERCURY GRAND MARQUIS**
$15,163

MARK SENNET—ONYX

age of two subindexes, one for technical quality and the other for dealer service.

The Japanese, of course, dominated this year's top spots, but there were some surprises too. Money does not necessarily buy happiness: Half the top ten cost less than the average of all cars sold in the U.S., $12,621. Mercedes, which surrendered first place last year to Honda after leading for four years, fell to third. Reliability problems hurt, particularly with the 190 series. Mercedes' service continued to get high marks—but the highest went to Acura, Honda's venture into the high end of the market, which claimed top spot its first year out. Service was hailed by more owners of the Integra than the $20,250 Legend, but both groups were delighted. Both also proclaimed their cars very reliable.

The companywide rankings of Detroit's Big Three show that new models can still make trouble. Ford, first last year, fell to third because of multiple problems with the acclaimed Taurus and Sable. Chrysler took the lead, leaving GM in the middle again.

Good service can go a long way toward redeeming a troublesome car. Cadillac owners reported woes with fit, finish, and mechanical parts. But because service departments excelled in being helpful, courteous, and understanding, Cadillac vaulted from 14th place on last year's list to seventh—the first GM car to make it into the top ten. Conversely, BMW skidded from sixth to 11th because owners reported a falloff in helpfulness, courtesy, ease of getting an appointment, and quality of work.

But the survey results have limits. Power thinks BMW's lapse may reflect booming sales that have overtaxed dealers. And despite it all, Power adds, BMW folk are "much more satisfied" than owners of competing makes. Car ownership is at least partly a love affair for many drivers, and such people are willing to forgive a lot if the flame still burns bright. **—Stephen J. Madden**

THE U.S.: TEAM AT THE TOP OF NO. 2

■ A rumor has been circulating around Detroit for several months that Ford Chairman Donald Petersen, 61, will take early retirement so that Vice Chairman Harold "Red" Poling, who is 11 months older, can move up to chief executive officer before he retires too. Petersen swears he has no intention of retiring early, but the rumor points up the unusual degree of respect and cooperation between the two men.

Petersen and Poling are exemplars of Ford's new breed of manager. Both held big jobs overseas before landing top posts in the U.S. Petersen ran all of Ford's international automotive operations in the late 1970s, while Poling served as head of Ford's European activities for five years until 1980. They also are the prime movers behind the team spirit that has overtaken the company since the man with his name on the building, the late Henry Ford II, stepped down as chief executive in 1979.

Working together, Petersen and his red-haired colleague had a hand in Ford's first attempt at building a "world car." The effort foundered because the demands of European customers (small engines, high fuel economy) could not be melded with the wishes of American buyers (bigger engines, more optional equipment). But the project was the forerunner of the company's new policy of parceling out engineering assignments to separate "centers of excellence" on three continents.

In 1980 Petersen and Poling returned to the U.S., where Petersen was named company president and Poling got the job of reviving Ford's troubled North American operations. As the company's two top executives, they have done their jobs so well that Ford will make more money than GM and Chrysler combined this year, and Ford division cars and trucks have passed Chevrolet's as the biggest-selling individual brand.

SCORPIO
1988

Petersen (left) and Poling shaped Ford's world thrust.

DANA FINEMAN—SYGMA

At Ford's world headquarters, the two occupy adjacent offices and try to have lunch together once a week. Poling concentrates on operational matters, while Petersen focuses on strategic issues. In addition to desk time, both men spend at least four hours a month guiding cars around Ford's Dearborn test track to evaluate engines, transmissions, and suspensions. They were the first Ford executives to graduate from Bob Bondurant's four-day performance driving course in California in 1982—a cram course in how to handle a car at high speeds and avoid accidents—and have been encouraging others to follow in their skid marks. Poling, a finance man by training, says, "It really helped me to learn about our products, to the point where I can now make suggestions to improve them."

Around the company, the taller Petersen is known as "Mr. Outside" for his unruffled behavior before large audiences, while Poling, who is considered fairly shy, does better in smaller settings. Poling is the more competitive of the two. Though he tore up a knee while playing college football, he is an active golfer with a 7 handicap. Both are collectors: Petersen of minerals and jazz recordings, Poling of fine wine.

With Ford running as smoothly as an eight-cylinder engine, a current concern for both men is picking their successors. The odds-on candidate for chairman is Allan Gilmour, 53, recently made head of international operations, while Philip Benton Jr., 58, who now runs the worldwide auto business, and Louis Ross, 55, the North American boss, are the leading candidates for the No. 2 job. Handicapper's tip: Look for two more men who can work as a team.

Honda's lack of linkups is chance, not design. More likely it is an outgrowth of Honda's yen to chart its own course. Says Nobuhiko Kawamoto, president of Honda Research & Development: "We keep destroying our organization and keep rebuilding it. We have to have flexibility and energy."

Do such developments mean that being big is now a disadvantage? So holds the preponderance of conventional wisdom today, and GM's travails seem to offer proof. Smaller companies, the reasoning goes, are leaner, more efficient, and quicker to respond to change. Even in developing new technologies, they are perceived to be more effective. Andrew Graves, another MIT analyst, points out that GM invested $3.7 billion in R&D in 1985 and won some 300 patents. Honda spent only $670 million, but also got about 300 patents.

But the problem may not be size itself as much as GM's failure to capitalize on it effectively. Toyota, considered the world's most efficient automaker, is no pygmy. It buys an estimated 80% of its parts from its own or captive suppliers. It simply manages the arrangement better. It is also quick on its feet and fast to respond to changing market conditions.

And while some advanced technology can be bought off the shelf—antilock braking systems, for example, which can bring a car to a stop on slippery surfaces without throwing it into a skid—car buyers are more attracted than ever to the company that is the first with the newest. It will probably take an automaker with deep pockets and plenty of technical expertise to produce the next major breakthrough in engine design or body assembly.

The strategies that the world's automakers adapt for the future reflect in large measure the companies' own current strengths and weaknesses. Ford, which has long thought of itself as an international company, is trying to capitalize on its European assets. Spurred by Chairman Donald Petersen (see box, page 82), who used to run Ford's overseas operations, it is using design centers in the U.S., Britain, and West Germany to develop a single worldwide replacement for two cars: one sold in the U.S. as the Ford Tempo and Mercury Topaz, and the other, the Sierra, manufactured in Britain and Belgium. Duties in the project, code-named CDW27, have been painstakingly divided. The door frame of the new car will be designed in West Germany; the moving parts for the door will be crafted in Britain. Teams of engineers in Britain regularly board a plane for the 90-minute flight to Cologne for conferences with their German counterparts, and vice versa.

GM, which builds 73% of its cars in North America, traditionally has encouraged little interaction with its overseas subsidiaries. So Detroit has sole responsibility for North America, while Opel designs all GM cars sold in 15 other countries. Says Paul Bausch, an Opel engineer: "It gives us much better efficiency to do development work under one roof." Divisions between the two continents are crumbling, but slowly. GM wants to import two Opel models for sale in the U.S., but Opel officials are not keen on selling them through GM's dealer network.

THE JAPANESE scare everyone. Says Peter Slater, an international strategist for Ford: "Toyota is our No. 1 competitor. It is far more dangerous than General Motors. And if Honda keeps improving the way it has over the past ten years, we'll all be pressed to keep up with it."

Yet the strategies of the major Japanese players are simple. Toyota, with its massive assembly complex near Nagoya, a two-hour ride by high-speed train from Tokyo, essentially builds one version of each model at home and ships it all over the world. Since Honda's production facilities in Japan are taxed to capacity, it has been far more aggressive in building U.S. plants, but it still makes the same car in both places. Soon those American-built cars will be shipped overseas to Europe and Japan as well.

By the 1990s any company that survives will have to make cars that are up to the standards of the hotly competitive world market. The title of low-cost producer will shift from country to country, depending on who benefits the most from currency swings. So the future will belong to those who can master the

EUROPE: A BATTLING BUREAUCRAT

■ An unlikely executive is driving an improbable company to a spectacular turnaround that has left rivals amazed and anxious. Under the guidance of Jacques Calvet, a former bureaucrat, Peugeot, the former basket case, has almost caught Ford, capturing 11.8% of the European market. That puts it in fourth place behind Fiat, Volkswagen, and Ford. Nearly bankrupt when Calvet took charge in 1984, Peugeot should earn almost $1 billion this year; the company's stock has risen more than sixfold since 1985, to $273 a share.

For an auto magnate, Calvet, 56, is remarkably homespun. He works in a tiny office equipped with worn wooden furniture. His secretary sits 20 yards down the hall; executives frequently spot the boss jogging down to see her. Tall and wiry, a shock of brown hair tumbling over his forehead, he wears rumpled wool suits even in summer. Calvet has been known to get down on his knees in Peugeot showrooms to inspect the metallic finish on a car's rocker panel. The auto business, he claims, is a labor of love: "It requires me to be both a manager and a poet."

AGNES BONNOT—VU

Calvet aims to lead Europe.

A graduate of the Ecole Nationale d'Administration, France's top school for civil servants, Calvet rocketed to the top of the bureaucracy, serving in the early 1970s as the chief aide to Finance Minister Valéry Giscard d'Estaing, later President of France, and then as head of a state-owned company, Banque Nationale de Paris. He was sacked in 1982 by the newly elected Socialist government. Calvet then joined Peugeot, the privately owned producer of Peugeot and Citroën automobiles. Racked by heavy debts, crippling strikes, and a bloated work force, Peugeot lost $443 million in 1983. It did not help that the Socialists were zealously protecting jobs. When Calvet demanded government approval to eliminate 7,400 workers at an auto plant near Paris, the Socialists insisted that Peugeot reduce its 40-hour workweek to 39 hours in exchange. Calvet refused and eventually won the showdown, inspiring dozens of French companies to cut costs through layoffs.

This year Peugeot will turn out 1.8 million cars with 165,000 workers—100,000 more vehicles than it produced in 1981 with 218,000 employees. Peugeot and Citroën once manufactured separate lines of parts in separate, outmoded plants. Today robotized factories churn out motors, gearboxes, and other components for both lines, a shift that has enabled the company to close five components factories since 1984.

Calvet plans to make Peugeot No. 1 in Europe by turning it into the only European automaker with two full lines of cars: four models each of both Citroën and Peugeot, ranging from subcompacts to luxury sedans. But his ambitious plans face a new roadblock. In August the French government announced it would write off $1.5 billion to $2 billion of its loans to Peugeot's stricken state-owned rival Renault in preparation for eventually privatizing it. Without the write-off, the government argues, Renault would be bankrupt once it left the government. But Calvet regards the write-off as an outrageous subsidy that would give Renault an unfair competitive advantage, especially since the government has yet to set a date for privatization. In September he suggested he might quit if the bailout goes through. "We were in deficit too," Calvet argues. "But we pulled ourselves out without the aid of the taxpayer." The government is now reconsidering the write-off. Nobody relishes a battle with bureaucrats like former bureaucrat Jacques Calvet.

— Shawn Tully

arts of styling, marketing, and image building.

They will undoubtedly be taking their cues from the West German luxury car manufacturers, the world leaders in image marketing. You pay more for a British Rolls-Royce or an Italian Lamborghini, but Mercedes-Benz is the world's standard. The 600,000 cars it builds each year are more or less constantly in demand, despite complaints about the quality of its lowest-priced line, the 190 series, and about Mercedes prices ($27,430 to $70,600 for U.S.-equipped cars). Just now, smaller BMW is giving Mercedes a stiff fight for bragging rights. Its 12-cylinder 750il, which will sell for more than $65,000 in the U.S., beat Mercedes' new big cars to market by a year or two, and auto buffs consider them the *crème de la crème.* Sniffs Gunter Kramer, president of BMW of North America: "We're very small and very careful to remain unique. Mercedes is in the fleet and taxi business."

In trying to limn the outlines of the future, it is prudent not to discard entirely the conventional wisdom of the past. Another oil shortage and price spike could create some of the same conditions in the early 1990s that produced the dire predictions of the late 1970s. Even without one, the long-run outlook of several automakers remains in doubt. Though a nimble marketer, Chrysler lacks the capital to develop new engineering. Britain's Rover Group and France's Renault are wards of the state. As Toyota, Nissan, and Honda continue to strengthen, less room is left for such Japanese bit-part players as Daihatsu, Isuzu, Subaru, and Suzuki.

AS IMMENSE as auto companies are, they can rise and fall remarkably quickly. Several that survived into the Seventies disappeared in the Eighties: France's Simca and Talbot, Britain's Rootes Group and British Leyland, and the U.S.'s AMC. Hyundai, on the other hand, vaulted from nowhere to become America's No. 6 import. Thriving BMW was a struggling maker of sporty but modest sedans just 13 years ago.

Don't underestimate the potential for surprising turnarounds. In the early 1980s experts foresaw the U.S.'s Big Three becoming a Big Two—or even a Big One. Then GM tripped over its shoelaces, while Chrysler came back from the brink and Ford scored an unexpectedly big success with the Taurus and Sable, assuring itself a major role into the Nineties. Any one of today's troubled automakers could pull off such a reversal. Even GM. ■

JAPAN: HANDS ON AT HONDA

■ Honda Motor is most noteworthy these days for aggressive strategic moves—its overseas expansion and bold assault on the luxury car market. But the company originally made its mark through obsessive attention to the design of its cars, and that obsession is embodied in President Tadashi Kume.

In keeping with Honda's freewheeling corporate culture, Kume delegates heavily to his lieutenants. For example, Tetsuo Chino, president of Honda North America, is generally credited with planning a second plant in Ohio and developing the phenomenally successful Acura line. But Kume still loves engineering and is a hands-on manager by nature, so he spends much of his time visiting plants, suppliers, sales outlets, and research labs, grilling everyone from engineers to customers on what buyers want and how the company can give it to them. Workers sometimes grouse about his nitpicking, says Toru Teshima, president of Stanley Electric, a supplier, "but he understands the needs of engineers."

Referring to Thomas Alva Edison's dictum that "genius is 1% inspiration and 99% perspiration," Kume says, "I perspire 99.9% of the time." He put his career on the line in a 1968 showdown with the company's legendary founder, Soichiro Honda. As the young chief engineer of R&D, Kume insisted that the cars Honda was planning to build should be outfitted with water-cooled engines, which would be cleaner and quieter than the air-cooled ones Honda favored. The founder was adamant, so Kume submitted his resignation. In the end Honda came around, and Kume returned.

As a child in the port city of Kobe, he was fascinated by ships, planes, and trains, and built ship models from chopsticks and paper. At Shizuoka University, where he majored in mechanical engineering, he managed only a C in math but was a genius at mechanics. Students in the auto club called in Kume when their tired Dodge sedan broke down. Still, he failed the entrance exam of a major automaker because of his poor knowledge of metals. A professor introduced him to then fledgling Honda, which he joined in 1954.

One of Kume's earlier assignments was to design an engine for Honda's entry into Formula II car racing. The first versions broke down constantly—not uncommon for a new racing machine. Kume commuted between Japan and the European race circuits, heading straight from the airport to the lab when he got home to toil around the clock and sleep in his office. Within half a year he had perfected the design, and Honda won 11 of the 12 races it entered.

Kume went on to design more than 30 engines, including the famous low-emission CVCC engine that helped make Honda's name in the U.S. In the days before computer-aided design systems, Kume stored engine plans in his head as he worked. Arms folded, he would sit and stare all day at a chalkboard, working out a basic concept that he would later commit to paper. Nobuhiko Kawamoto, head of Honda's R&D, says, "I don't know of anyone in the world who is greater at machinery design than Kume."

Kume's declared aim these days is to triple Honda's already high productivity. That's an astounding ambition, made doubly astounding by his assertion that he is close to achieving it. Neither he nor other Honda officials will elaborate, but whatever the actual goal, rivals had best pay close attention to what this passionate manager sets out to do. **—Frederick Hiroshi Katayama**

GEORGE STEINMETZ

An engineer at heart, Kume sweats the details.

TOUGH TIMES LIVING WITH TAX REFORM

Business is wrestling with confusion over last year's sweeping tax changes while it awaits a "technical corrections" bill that could be longer than the act itself.

■ *by Kenneth Labich*

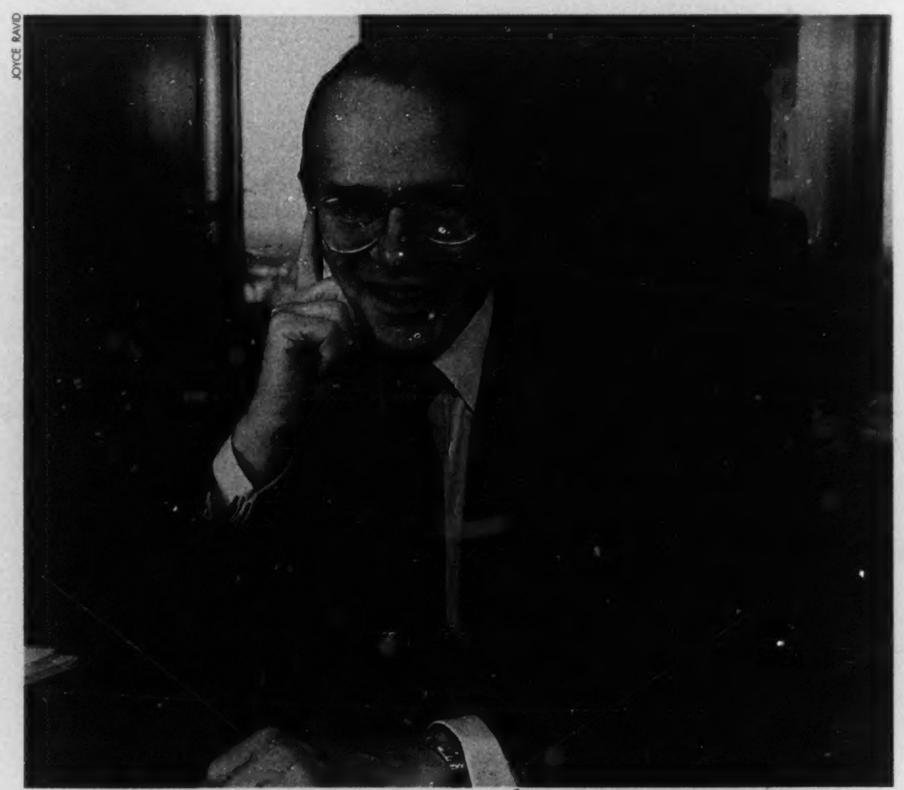
ONE YEAR after Congress passed its sweeping tax reform, businesses across the U.S. are only beginning to grapple with the law's dizzying effects. Companies of all types and sizes have had to change their way of doing business as they try to cope with complex new regulations and, on average, much higher tax bills. The full effects of tax reform on the economy are still unknown, but one result is abundantly clear: It has enormously complicated corporate financial and investment planning. Since many of the new rules are vaguely drawn or subject to interpretation, accountants and financial officers often can only guess at the tax consequences of some major corporate maneuvers.

Unsurprisingly, businessmen who opposed tax reform during its gestation say the new baby is a monster, while the relative handful of corporate proponents insist that it will be a tonic for the economy. Most executives fought reform because Congress took away the cherished tax credit of up to 10% for investment in capital equipment and at the same time stretched out depreciation on many types of plant and equipment. Congress gave back some of the extra revenues generated by those changes by cutting corporate tax rates. The top rate on corporate profits dropped from 46% to 40% this year and goes to 34% in 1988. But about half the revenues from the elimination of corporate tax breaks went to finance the reduction in personal tax rates. The net result was roughly a 22% hike in corporate taxes, an increase of $120 billion over five years.

Robert E. Mercer, chief executive of Goodyear, echoes the bosses of many other capital-intensive manufacturing companies when he grouses that tax reform will stifle investment and productivity growth. "If we were planning a bill that would increase U.S. competitiveness," says Mercer, "it would be the opposite of this." George M. Keller, Chevron's chief executive, is even more caustic: "I call it tax *de*form. It's a terrible step backwards."

Among the business defenders of reform, none has been more enthusiastic than John H. Bryan, chief executive of Sara Lee. Like most advocates of reform, Bryan argues that the changes will promote economic growth because the investment tax credit (ITC) and other special breaks that Congress eliminated had been distorting capital allocations. Now that corporations are taxed much more equally, investment should flow to the most

REPORTER ASSOCIATE *Edward Prewitt*



JOYCE RAVID

"For God's sake, leave the tax code alone. It's not fair. It's not equitable. But leave it alone anyway so we can get on with financial planning."

ROBERT C. WINTERS—*Chief executive, Prudential Insurance Co.*

productive uses rather than to those most favored by the tax code.

In fact, the net effect of tax reform is unknowable in advance, and it may be impossible to measure even after the law has been in place for years. Economists who specialize in tax theory generally agree that getting rid of provisions like the ITC is a big plus. If Congress had used all the revenues gained by closing those loopholes to finance a bigger cut in corporate tax rates—and left total business taxes unchanged—reform almost certainly would have been a boon to the economy. But saddling business with an extra $24 billion a year in taxes is a big minus. And no amount of theorizing or econometric modeling can determine for sure whether the boost from reducing tax distortions is enough to offset the drag from higher corporate taxes overall.

THE IMMEDIATE EFFECTS of tax reform, on the other hand, are already apparent. By FORTUNE's estimate, pretax corporate profits will jump more than $20 billion this year, to $247-billion. But after-tax profits will drop by about $2 billion, to $122 billion. The punch to capital spending is even more dramatic: Outlays on plant and equipment dropped last year, when the repeal of the ITC took effect, and they are falling again this year. Business investment amounted to 12.6% of GNP in 1985 and will reach only 11.6% this year.

Companies have been running into plenty of unpleasant surprises—and some unintended ones—as they adapt to the new rules. One change is a much stiffer minimum tax. Corporations now have to pay the IRS at least 20% of the pretax profits they report to shareholders, even if the separate set of books they use to compute profits for the government shows they owe much less. That rule was designed to "catch" thriving outfits like General Electric that exploited old provisions in the code so adroitly that they ended up paying no taxes at all.

GEORGE STEINMETZ

"There is a tremendous amount of unsureness in planning now. I ask my accounting people about some ruling, and I get a 'worst scenario' answer."

GEORGE M. KELLER—*Chief executive, Chevron Corp.*

But the minimum tax also is catching some companies that should escape, even under the new ground rules. Bank of New York, for instance, is adding $135 million to its loan-loss reserves this year, mostly for possible write-offs of troubled Third World debt. The new reserves will be deducted from publicly reported profits this year. But Bank of New York will not be able to take the deduction on its tax return until next year or later, when it will actually write off the loans. Result: Profits reported to shareholders probably will be back up next year, taxable profits will be much lower, and Bank of New York probably will pay the minimum tax.

The tax experts at Goodyear are still puzzling over exactly how tax reform will alter the company's long-range plans. The company's accountants did a study of one recent expenditure, the $250-million refurbishing of a plant in Tyler, Texas, and concluded that the investment probably would not have been sufficiently profitable under the new code.

The accountants say "probably" because figuring out the true economic benefits of any big project has become far more complex. Assistant controller Ronald C. Houser says that when top management wants to know whether to build a new plant, his staff must now perform a series of calculations to account for the new minimum tax, for new rules governing the taxation of foreign income, and for regulations that require a more complete accounting of inventory costs. "We end up doing four or five times the work," says Houser. "And the economic benefit to the company may still be unclear."

The tax crew at Chevron also is reeling over fresh complexity and ambiguities. Chairman Keller fumes that the law is so convoluted that it makes financial predictions impossible: "There is a tremendous amount of unsureness in planning now. I ask my accounting people about some ruling, and I get a 'worst scenario' answer." They aren't kidding. It will be years before the IRS and Treasury decide on the final rules to implement what Congress mandated in the 1986 act. Emil M. Sunley, director of tax analysis at the accounting firm of Deloitte Haskins & Sells and former deputy assistant secretary of the Treasury for tax policy, notes that it takes the IRS about three years to issue regulations on major provisions of tax bills. It *never* writes all the rules needed to enforce

"What's grossly unfair is paying taxes according to the ability to lobby Congress. Some statesmanship has finally come out of Washington."

the changes Congress dictates. Keller was particularly riled recently when his accountants couldn't tell him how the IRS will now treat the interest payments on the company's $7-billion debt.

UNDER THE OLD LAW, interest on that debt was almost fully deductible. But companies now have to allocate some of their interest expenses to foreign income. They deduct the "foreign" interest from foreign profits to calculate how much they can claim in credits for taxes they pay abroad. Since the interest charges reduce foreign profits, they also reduce allowable foreign tax credits and thus boost U.S. taxes.

But by how much? Chevron's financial officers, no slouches at their job, cannot figure out how much of the company's debt will qualify for a deduction in the U.S. and how much they will have to allocate abroad. Congress may fix this and other glitches in a "technical corrections" bill. That bill has been in the works for a year and probably is still six months or more from completion.

The grumbling is equally loud at Du Pont, even though the company may actually pay less taxes this year than it would have under the old code. Earnings are up so sharply that the drop in corporate tax rates may more than offset the loss of other breaks. But company officials are still annoyed. William Resnick, director of Du Pont's tax division, says Congress erred grievously by leaving much of the rulemaking to the Treasury and the IRS. He says they are prone to overlook fairness and resolve all questions so as to produce more revenue.

Even if a company operates under that pessimistic premise, Resnick says, it still cannot predict the ultimate outcome of any major dispute with the government tax collectors because of the new law's complexity. He specifically cites the increased accounting load brought on by the minimum tax, almost indecipherable foreign tax provisions that break up corporate income into various "baskets" that are taxed at different rates, and "uniform capitalization" rules that require new inventory valuations. Says Resnick: "I maintain that this bill is unauditable."

Financial service companies are finding lots to complain about as well. Prudential and other life insurers do not benefit greatly from the lower corporate tax rate because Congress had already cut their rate to 36.8% in 1984. Instead the Pru will get smacked by the increase in the corporate capital gains rate from 28% to as much as 34%. And the repeal of the ITC will cost Prudential about $35 million this year. Says Chief Executive Robert C. Winters: "If your objective is capital formation, then heavy taxes on life insurance companies isn't a very good idea. If your objective is to pluck geese, then you pounce on the first gander that comes along."

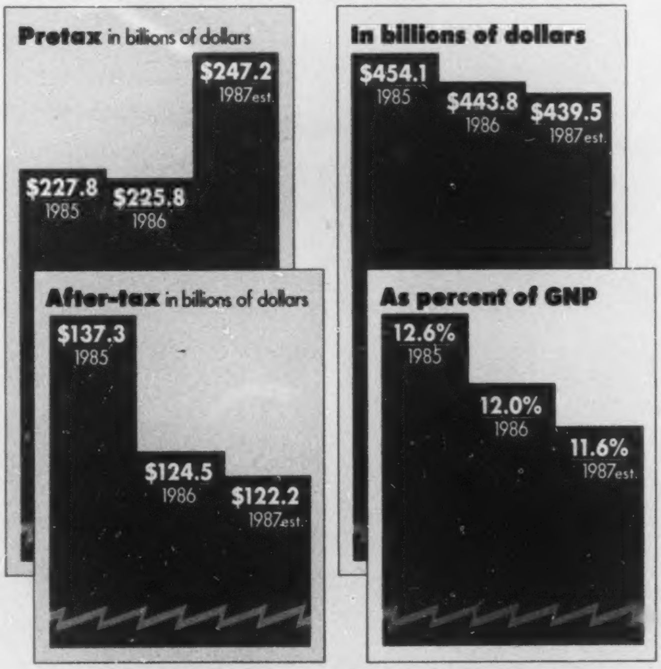
New complexity in the treatment of employee benefits such as pensions, health insurance, and life insurance also troubles Prudential. The company has three divisions that administer benefits for other employers, and it will have to pass along its increased costs to customers. Jeremy Judge, Prudential's assistant controller, says that new rules governing benefits require so much extra documentation that Prudential has been forced to design entirely new programs for some customers. Says Judge: "The complexity is such that we don't know exactly what's going to happen—what to plan for ourselves and what to sell to other companies."

THE WINNERS under tax reform have a decidedly different fix on the new regime. Bryan of Sara Lee says the new law will have only good effects for his company and its customers. Sara Lee will pay lower taxes this year than last, and Bryan says it will pass the savings along to pastry lovers in the form of lower prices. Brushing aside the complaints about complications and confusion, Bryan argues that reform has rechanneled the energies of many American businesses from seeking shelters to more productive enterprises. He quickly dismisses arguments that the new code is essentially unfair in some respects. "What's grossly unfair is the concept of various industries paying taxes according to their ability to lobby Congress," he says. "Some statesmanship has finally come out of Washington."

Though less fervid than Bryan, Hewlett-Packard's chief executive, John A. Young, is another backer of tax reform. Like many high-tech companies, Hewlett-Packard has relied far less than big capital-goods producers on investment credits and accelerated depreciation. So the drop in basic rates more than makes up for those changes. "On balance the situation is much more favorable," says Young. "It's had a considerable benefit on our cash flow."

Young sees little merit in complaints from basic industries about lost benefits. "If we have capital-goods problems, they ought to be taken care of in some other way," he says. But when it comes to an issue much

TAX REFORM HITS CORPORATE PROFITS . . . AND CAPITAL SPENDING



The heavy burden *that Congress shifted to corporations last year is showing up in lower after-tax profits, despite higher pretax earnings. Capital spending is down largely due to repeal of investment tax credits.*

closer to home, tax credits for spending on research and development, he takes an entirely different view. Says Young: "It's one of those things I separate from a tax loophole because it really is good industrial policy."

Since R&D credits remain largely intact under the new code, Young has been able to boost his research spending from about 10% of sales to about 12%. But he, too, has a gripe about the new computation of foreign profits. Like interest, some R&D expenses must be allocated to foreign operations, depriving the company of some of its R&D credits. Young wants that reform re-reformed.

NONFINANCIAL service companies made out the best under tax reform, and few better than Ryder System, the Miami-based company that leases and maintains trucks and aircraft. Ryder lost the ITC on new purchases for its armada—but so did its customers, who are now recalculating their lease-or-buy decisions. Many are finding that some aspects of reform, including the minimum tax, make leasing look better than ever.

> By cutting the top personal tax rate below the corporate rate, Congress made double taxation of profits more punishing than ever.

Ryder's leasing business will be up more than 20% this year. To meet soaring demand, the company is adding 15,000 trucks to its lease fleet of 53,000. Ryder has exploited its advantage to the fullest, sending salesmen into the field with computer programs that show customers exactly how much they can save by leasing.

Many small businesses have been startled by tax reform's impact on their operations. Some companies that financed their operations with tax-exempt industrial revenue bonds have had a particularly rude surprise. Beginning in 1982, some banks began putting clauses in industrial revenue bonds that called for higher interest rates in the event Congress cut corporate tax rates. That's because a lower tax rate reduces the equivalent after-tax yield on the bonds. About $15 billion of industrial revenue bonds issued between 1982 ~~and 1985~~ have such clauses, and the interest on them is going up by as much as three percentage points. In other words, tax reform has saddled the companies that borrowed via the bonds with an extra $300 million a year or so in interest costs.

Owners of small companies also have to rethink how they want to organize their business. By cutting the top personal tax rate below the corporate rate, Congress made the double taxation of profits more punishing. In the past the lower corporate rate acted as a sort of tax shelter for owners of profitable, growing companies. They could pay tax at the corporate rate instead of the higher personal rate and then reinvest the after-tax profits in the business. Now it pays them to escape the corporate tax altogether if they can, and pay at the lower personal rate.

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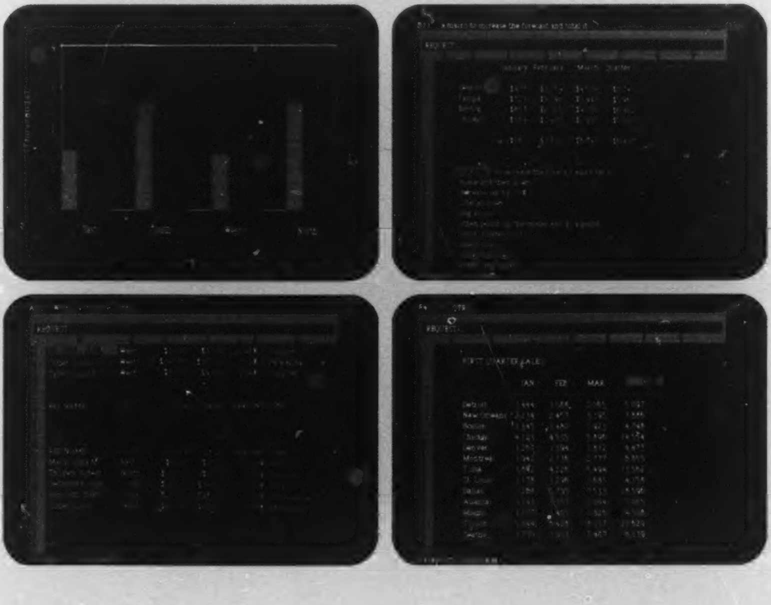

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Some companies do that by organizing themselves as so-called subchapter S corporations, which are taxed like partnerships. In the past year, many others have escaped corporate taxes by converting to what are known as master limited partnerships. But Congress wants to shut off that escape route. A tax plan that has been approved by Democrats on the House Ways and Means Committee would eliminate the master limited partnership option for active businesses (as opposed to "passive" businesses like real estate partnerships). The tax package, designed to raise $12 billion of new revenues, almost certainly faces a Reagan veto if it passes in the House and Senate. But master limited partnerships might also get hit in the technical-corrections bill.

BRAD MARKEL

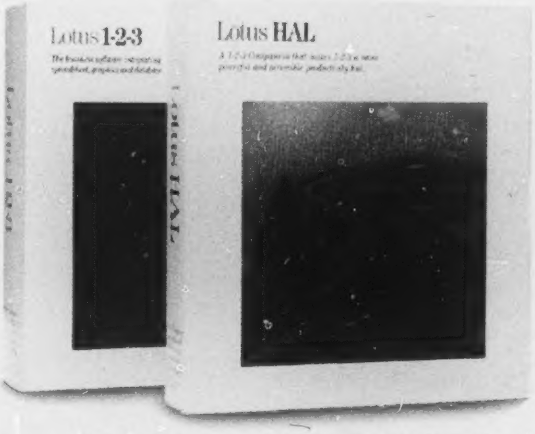
Peggy Duxbury *of the National Association of Manufacturers cites compliance nightmares.*

THE NEW TAX ~~CODE~~ clearly is fairer than the old one, both for corporations and individuals. Once it is fully phased in, the taxes paid by individuals or corporations with similar incomes will be much more equal than before. But that fairness has come at the cost of a numbing increase in complexity, especially for corporations, but also for individuals unlucky enough to have large amounts tied up in tax shelters.

Many experts, including Peggy Duxbury, director of taxation at the National Association of Manufacturers, believe that Congress must radically simplify the tax code, and soon. Says Duxbury: "Businesses are spending huge sums of money to hire new accountants and work up new computer systems, just to have the auditors reverse everything two years down the line." The added costs of complying with the rules are just as much a tax on business as the checks companies send to the IRS.

Yet the most sensible approach may be to do nothing at all right now. After wrestling with four major tax bills in six years, even some of the staunchest opponents of reform are calling for a period of benign neglect. Says Winters of Prudential: "For God's sake, leave the tax code alone. It's not fair. It's not equitable. But leave it alone anyway so we can get on with financial planning."

That doesn't seem likely. Says Emil Sunley of Deloitte Haskins & Sells: "There's a tremendous industry that has built up in Washington simply monitoring the changes in the tax law and proposing new ones." So for a while at least, it seems that death will be the only certainty.



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AMERICA'S BEST-RUN CHARITIES

The key clue: How much does your favorite cause spend on programs instead of overhead?

■ *by Gwen Kinkead*

ROSS PEROT is giving away his $2.5-billion fortune. He says it is all going to charity, "the best and highest use." Over the past two decades he has parted with more than $100 million, and in the process has learned that while good causes are easy to find, good management is not. With customary pith, Perot tells how to judge charities: "The whole trick is to figure out which deliver results, which have leadership, and which are using the money for the people who need it, as opposed to chewing it up in overhead, making it disappear in enormous amounts, wasted."

That is a workable rule for anyone trying to identify charities worthy of support, at a time when the need for private generosity is increasing. Cuts in federal and state funding have left large—and increasingly visible—gaps in the social welfare net that private agencies are struggling to mend. Perot's sister, Bette, who has charge of his foundation, reports, "We are under siege here in Dallas with requests for help," particularly, she adds, for food and shelter needed by the homeless and poor.

Charities dealing in health and social service causes—some 135,000 in all—are sending out mail and telephone solicitations as never before. In an extreme example, a Virginia businessman had his dinner interrupted seven times by phone calls asking for donations. The appeals will increase. The Independent Sector, a Washington-based coalition of corporations, foundations, and charities, is calling for a doubling in the next five years of the $87 billion a year that fund-raising drives now bring.

Not all the charities mounting drives are well known or national. Typical of many local charities is Pegasus (see picture below), a 12-year-old program in Darien, Connecticut,

Riding horses *provided through Pegasus, a Darien, Connecticut, charity, helps cerebral palsy victim Ashley Milne, 5, toward health—and joy.*

SYLVIA PLACHY

that helps disabled children and adults regain balance and coordination through horseback riding. Most of Pegasus's 150 "clients" have brain damage, usually from birth injuries, accidents, cerebral palsy, or stroke. The innovative program, run mainly by volunteers, raises $90,000 a year to provide free riding lessons at eight stables in Connecticut and New York.

WHICH CHARITIES are well managed and deserve your money? The best benchmark—useful but not infallible, because of the differences in needs served and services offered—is the percentage of revenue an organization spends on "program," or the good works for which it was established (see table). There is no magic figure for spending on program vs. overhead and fund raising. And the Supreme Court has ruled that states may not establish fund-raising benchmarks. In 1984 the Court struck down a Maryland law that made it a criminal offense for a charity to spend more than 25% of gross income on fund raising. The Court declared that high solicitation costs are not necessarily an indication of wrongdoing.

Two watchdogs that do set ethical and procedural guidelines and review charities for compliance differ on what percentage of program spending is enough. The Council of Better Business Bureaus likes to see at least 50% of income spent on program; the National Charities Information Bureau, 60%. In return for a self-addressed, stamped envelope, both organizations will send prospective donors reports assessing various charities. Write to the Philanthropic Advisory Service of the Council of Better Business Bureaus, 1515 Wilson Boulevard, Arlington, Virginia 22209, or the National Charities Information Bureau, 19 Union Square West, New York, New York 10003.

Movie star–philanthropist Paul Newman sets a more stringent standard in giving away the profit made by his food companies, New-

REPORTER ASSOCIATE *Patricia A. Langan*

CHARITY	TOTAL ANNUAL REVENUES in millions	SPENDING		SOURCES OF INCOME			TOTAL PAID STAFF Volunteers
		PROGRAMS in millions % of total	FUND RAISING, ADMINISTRATION in millions % of total	PUBLIC DONATIONS in millions % change from 1977	GOVERNMENT PAYMENTS in millions	OTHER INCOME in millions	
American Red Cross	$973	$796 82%	$76 8%	$341 +441%	$30	$602	22,100 1,400,000
Salvation Army*	$865	$740 86%	$124 14%	$473 +50%	$92	$300	29,350 1,000,000
Unicef	$463	$392 85%	$45 10%	$67 +179%	$348	$48	1,652 N.A.
Goodwill Industries of America	$447	$342 77%	$82 18%	$42 +206%	$88	$317	N.A. N.A.
CARE	$397	$376 95%	$21 5%	$45 +125%	$340	$12	7,087 N.A.
American Cancer Society	$308	$206 67%	$66 22%	$271 +138%	$00	$37	4,453 2,500,000
Planned Parenthood Federation of America*	$274	$226 83%	$48 18%	$67 +191%	$106	$101	8,200 18,000
United Cerebral Palsy Association	$233	$194 83%	$37 16%	$40 N.A.%	$156	$37	N.A. 2,000,000
National Easter Seal Society	$212	$160 76%	$43 20%	$83 +86%	$51	$78	5,600 800,000
Boys Clubs of America	$187	$148 79%	$40 21%	$103 N.A.%	$9	$75	3,650 150,000
American Heart Association	$179	$129 72%	$43 24%	$151 +124%	$1	$27	2,700 2,300,000
Volunteers of America	$166	$151 91%	$14 8%	$14 +213%	$69	$83	5,000 N.A.
Association of Retarded Citizens of the U.S.*	$140	$108 75%	$20 15%	$28 +27%	$80	$32	5,600 300,000
March of Dimes Birth Defects Foundation	$112	$82 73%	$33 30%	$106 +83%	$00	$6	1,600 275,000
American Lung Association*	$97	$65 67%	$28 29%	$80 +88%	$0.8	$17	1,500 150,000

*Estimated.

How the Money Comes and Goes

The 15 largest charities are ranked by 1986 revenues. Some get sizable income from sources other than donations. Red Cross, for example, earns over half its revenues by selling blood; Unicef sells greeting cards. Government payments are for services, except in the case of CARE, which distributes surplus food. Some percentages do not add up to 100% because of surpluses or deficits. All figures were supplied by the charities.

man's Own (popcorn, spaghetti sauce, and lemonade) and Salad King (salad dressing). In four years he has donated $11 million to 300 charities. He and partner A. E. Hotchner, a writer best known for his 1966 book, *Papa Hemingway: A Personal Memoir,* look for organizations that spend at least 85% of revenues on their programs. Says Hotchner: "If the whole point of your business is to give away money, we don't think you should gobble it up first."

Many of the 15 largest social welfare and health charities listed in our table come within reach of that stringent standard, but only four equal or exceed it. One that does is the Salvation Army. An unabashedly evangelical church, whose officers wear red labels symbolizing the blood of Christ on their blue suits, the Salvation Army aims to restore the self-respect of those who cannot help themselves. Says author Peter Drucker, a consultant to several charities as well as business managements: "The Army probably does a better job with the poor than anyone else. Its achievement is to convert outcasts into citizens." Board member George McCullough, a former Exxon vice president, marvels, "For helping the down and out, there is no one like the Salvation Army people. They stay with it."

And frugally. Of each dollar the Salvation Army receives, 86 cents goes to the needy. One reason for this heavenly record: The Army's troops work for next to nothing. Married Salvation Army officers with 45 years of service, for instance, get only about $12,500 a year per couple in salary. Each couple also receives a grant, which varies with location, of about $9,000 a year to pay federal, state, and self-employment taxes. In addition they get living quarters and, when necessary, the use of a car. In the Army's staff quarters, upholstered furniture must last ten years, and wooden furniture 15 years, before being replaced. The Army refuses to consolidate the finances of its five regional operations, citing the cost of hiring the necessary auditors.

Low-cost labor also helps Project Hope exceed the 85% standard in delivering health care to the developing world. The famous hospital ship is gone, unable to keep up with the demand for Project Hope's services. Its volunteer doctors now work on dry land, training local physicians and nurses. The doctors donate a year or two of their time and receive a nominal wage. They live in quarters provided by the host countries.

PROJECT HOPE spends nothing out of its annual revenues of $37 million on professional fund raisers, outside public relations firms, or paid advertising. Says founder William Walsh, a cardiologist: "Those are the things that eat your money up. We are unhappy if our spending on programs falls below 85% of revenues. After all, people send us money to help the less fortunate, not to help ourselves."

But Walsh also gets unhappy when his organization spends much more than 85% on programs. He finds that running *too* tight a ship makes it harder for Project Hope workers in the field to do their jobs. A certain number of people at headquarters are needed to raise money, organize programs, and be available to help out in emergencies. Says he: "We have been as high as 92% in program, but that's too high. Our people at home nearly had nervous breakdowns backing up the field."

At 95%, CARE outclasses all other big charities in program spending, but for special reasons. It is not a typical charity. The U.S. government donates surplus food and pays some shipping charges, which accounts for 86% of CARE's revenues. Public donations are used to move the supplies inland in poor countries to fight famines, droughts, and other disasters. CARE also digs wells and latrines, builds roads, schools, and small factories, and plants trees to control soil erosion. It excels at all these jobs. Says executive director Philip Johnston: "We strive to have the local government pick up as many of our expenses as possible—for instance, the rent on our offices." Such cajolery cut CARE's costs by $26 million last year, a sum equal to 58% of the $45 million it raised from public donations.

Most charities devoted to health causes do not make the 85% grade, but that does not necessarily mean they are badly managed. By spending more on fund raising, they argue, they increase the pot of money available to support their programs. Few pay medical bills or provide medications. "Frankly, that would be a bottomless pit of costs," says G. Robert Gadberry, executive vice president of the American Cancer Society. Muscular Dystrophy, however, does pay some medical bills and buys certain medical equipment, such as wheelchairs.

The health charities devote large amounts of money to educating the public. The American Heart Association makes no apologies for laying out $73 million last year on its campaign to tell the public and doctors about heart disease, compared with just $55 million for research. Executive Vice President Dudley Hafner credits the informational campaign against hypertension with helping to lower the death rate from cardiovascular disease.

The American Cancer Society, the sixth-largest charitable organization, solicits funds to

At Goodwill in Detroit, *a handicapped worker bags hose clamps for Ford.*

CRAIG PORTER

find cures for cancer, while crusading passionately and effectively against smoking. Last year it spent $44 million on fund raising, $75 million on education, and $81 million on salaries for its staff, while allotting only $77 million to research grants. The society plans to move from New York City to Atlanta to cut overhead; Gadberry says some of the savings will go to medical research.

Professional managers are bringing basic business techniques—such as long-range and strategic planning, salary reviews, and market research—to many charities.

NOW AND AGAIN a clear-cut case of bad management and fraud makes news. In 1978 the board of CARE appointed an executive director and later discovered that he had pocketed $106,000 of the agency's money. The man returned the money and served ten months in jail. The incident had a useful outcome—under Johnston the agency is now one of the best managed. Formerly a CARE official based in Europe, Johnston hired five new professional managers to back him up. They installed an internal auditor and raised salaries, linking them to job performance—something that was then rare among charities. They also put a professional agency in charge of opening donation-bearing envelopes.

High spending on fund raising and overhead justifies a close look at what's going on, but sometimes the spending seems proper. That appears to have been the case with Farm Aid, which was organized in 1985 by country singer Willie Nelson, a farm boy himself, in an emotional response to the economic plight of family farmers in the Midwest and South. Nelson produced three concerts to raise money to help debt-burdened farmers stay on the land. Such singers as John Denver and Neil Young donated their services, but the concerts were expensive to stage, inspiring criticism in the press. Nevertheless, Farm Aid claims that 62% of the $11.4 million raised by the first two concerts has reached farmers. Proceeds from the third concert, held in Lincoln, Nebraska, in September, are still being tallied. *Variety* quotes Nelson as complaining: "The media are always talking about where the money goes. The money is the smallest part of what we're doing. Farm Aid gives farmers hope."

Father Flanagan's Boys' Home, the formal name for Boys Town, immortalized in a 1938 Spencer Tracy movie, is a charity that in 1986 spent comparatively little of its resources. In addition to caring for 648 orphaned or otherwise disadvantaged boys and girls at the "home campus" near Omaha, Boys Town operates two small campuses in Florida (at Orlando and Tallahassee), a high school in Omaha's inner city, a diagnostic research hospital, and a technical-assistance service for nonaffiliated children's homes. The organization had revenues of some $92 million in 1986, a walloping $64 million of it from a $360-million endowment fund—probably one of the largest of any charitable organization. (Notes the Boys Town annual report: "The Lord has blessed us with an excellent year in the stock market.")

Boys Town spent only 35% of its income last year, while continuing to conduct fund-raising drives. The reason is that the Lord cannot be counted on to bless investments year in and year out, and so part of Boys Town's 1986 returns were used to build up the endowment fund for hard times. With its portfolio still prospering this year, the organization is skipping its 1987 drive and plans further expansion of its homes. Boys Town spends $26,000 a year on each child living on the Omaha campus. Father Val J. Peter, Boys Town executive director, says many of the kids there are "severely emotionally disturbed" and require costly care. He adds: "We're the Mayo Clinic of child care. I believe children are to be prized, not priced."

Charities are just now beginning to evaluate themselves. Notes United Way Vice President Russy Sumariwalla: "Charities do not like to be evaluated by anyone. This is a very touchy issue." Now professional managers are bringing basic business techniques—such as long-range and strategic planning, salary reviews, and market research—to many charities. As they straighten out finances and hack at overhead, they spring more money for program.

At decentralized charities such as the American Red Cross, March of Dimes, the American Cancer Society, Planned Parenthood, and the American Lung Association, managers can't easily swing an ax at overhead. The national organizations have no control over costs in their local branches, which are run by independent boards. Since branches also raise funds for the entire organization, executives at headquarters are loath to rein them in—and probably couldn't if they wanted to. Some workers belong to unions, which have a big say in personnel policies.

American Red Cross President Richard Schubert, former vice chairman of Bethlehem Steel, has cut 225 jobs from headquarters but is running into a turf problem trying to cut costs in branches: "It is very frustrating to me that we are not as efficient out there as we should be." March of Dimes board chairman Richard Hallinan, a former general counsel of Combustion Engineering, notes: "You can't move like you can in a corporation. There you can put out a memo to all international and domestic divisions and say, 'Tomorrow we do this.' In an outfit like this, you can't tell a chairman of a local board to do something. They don't work for me. They're not on my payroll. You have to use subtle persuasion. It's a little slower."

Some charities have found that self-evaluation can pay off. Multiple Sclerosis ($43 million in annual revenues, 70% to programs) went through a shake-up in 1982. The board brought in a professional manager and gave the organization's founder and salaried head, Sylvie Lawry, the unpaid position of "founder-director." One of the first things the new manager did was revamp the organization's financial systems. Says board chairman Clifford Goldsmith, former vice chairman of Philip Morris: "Before, they didn't quite know what was coming in, what could come in, and how to classify it. Now we are in great shape." The board boldly asked medical experts to assess whether its research money was well spent. The verdict was favorable, and Multiple Sclerosis is now spending more on research.

BOYS CLUBS, which sponsors educational programs and other activities for disadvantaged boys and girls, is another charity that evaluated itself recently. It hired a pollster to ask its alumni if its programs had helped them. Told by 96% of the living alumni from the 1920s on that the organization had made a difference in their lives, Boys Clubs decided to expand.

Most charities are run by well-meaning people, but not every executive director is a competent manager. The trend toward self-evaluation and professional management can only help charities do better the jobs they were organized to do. Ross Perot may start finding it easier to give away his money. ■

■ A SURPRISING FORTUNE 500 CEO POLL • BEST CHOICES C8900-1 11/10/87 S ■

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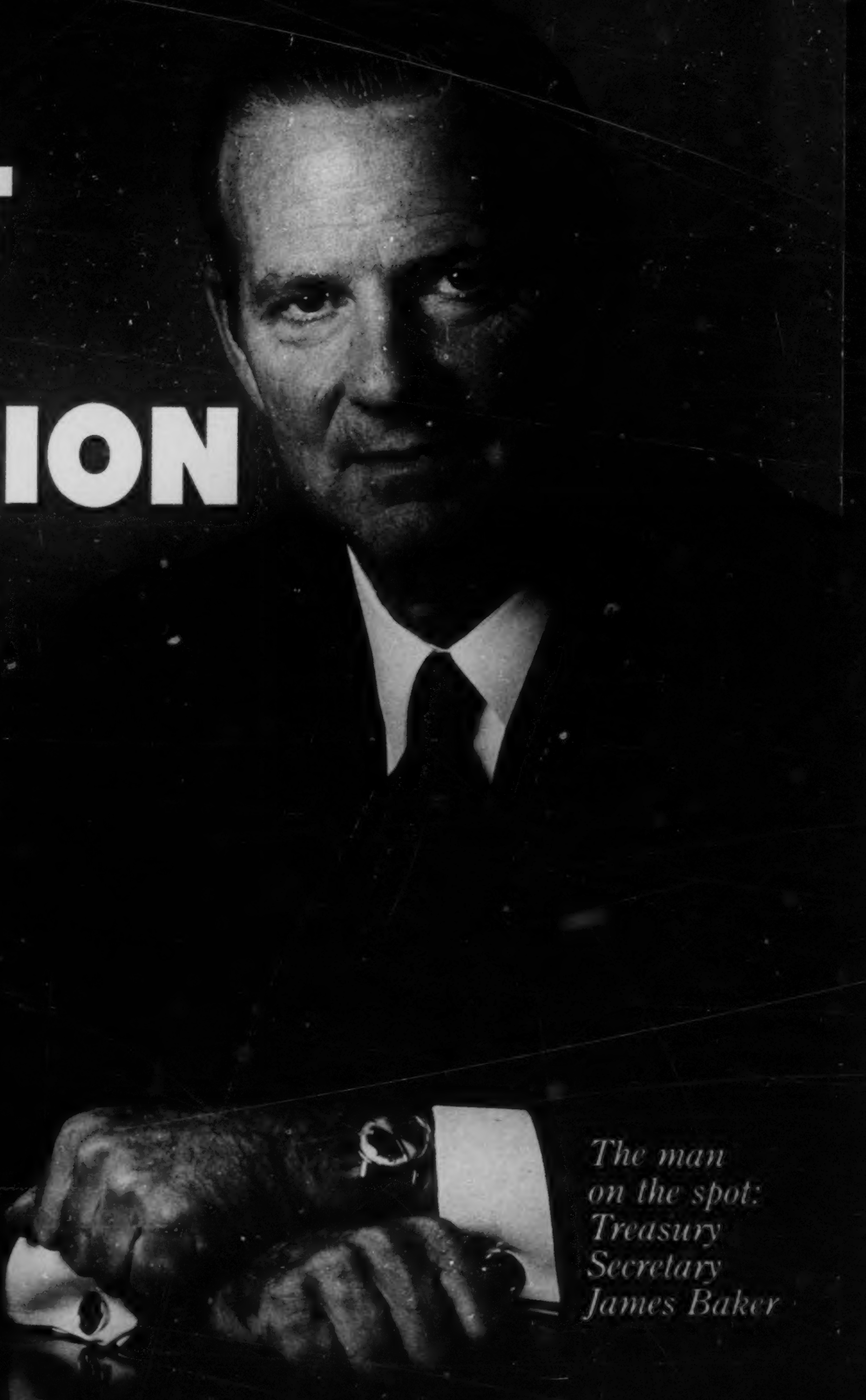

The man on the spot: Treasury Secretary James Baker

NOVEMBER 23, 1987

VOL. 116, NO. 12

FORTUNE

"Appearance is important. People want to see the President with the leaders of the community in a crisis."

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"If you limit program trading, you will simply hurt investors."

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"Nag the hell out of your overdue accounts."

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"Spoor's appointment may be temporary, but the parquet floor they're laying in his new office looks awfully permanent."

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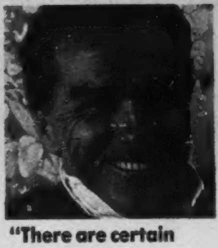

"There are certain aspects of my personal life I would like to rewrite."

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"A lot of this is the fruits of the sexual revolution, the drug revolution, the freedom to be yourself."

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THE EDITOR'S DESK

JOHN ABBOTT

In New York: Stock market probers Myron Magnet, Alex Taylor, Vivian Brownstein, John Curran; back row: Jaclyn Fierman, Colin Leinster, Robert Norton, Carol Loomis, Anthony Ramirez

THE extraordinary talents of my colleagues at FORTUNE account for what is, by any measure, our extraordinary Special Report on the stock market that begins on page 46. The mission we set for ourselves was clear: to impose some order on events that were themselves anything but orderly. Most challenging, we had to report on the future. It's now a commonplace that the stock market and corporate and political America will be quite different. But *how* will things be different? And how will the changes affect each of us individually—as investors, managers, citizens?

This kind of analytical, forward-looking reporting is FORTUNE's charter. For our report, we asked many of our top writers to put their pride in individual bylines aside and to act as reporters. (That, be the truth known, is what all journalists, including editors, really are at heart.) Four of our stories were written by the four writers seated in the front row of the picture above, with reports from the five writers standing behind them. They also got extensive files from Rik Kirkland in London, Louis Kraar and Fred Katayama in the Far East, Chicago bureau chief Ford Worthy, New York-based economist Sylvia Nasar, and many staff reporters. From Washington, writer Ann Reilly Dowd produced our story on the difficult policy choices facing the President and Congress, and bureau chief Lee Smith wrote the profile of the man in the middle (and on our cover), Treasury Secretary James Baker. As the writers were at work, so were art director Margery Peters, who oversaw the design of the section, and Michele McNally, who directed photographic coverage.

Nobody really expected the market to crash as violently as it did—and certainly not at that precise time. But readers of FORTUNE should have been less surprised than many others. Three months ago, just as the market peaked, our chief stock market writer, John Curran, advised investors to start taking out their profits. He repeated his worries in recent issues, warning that stock prices had surged too high. In this issue Curran scours the Wall Street basement and concludes: "There are some bargains."

STEVE KAGAN

In Chicago: Ford Worthy

The roiling stock market and its long-range implications aren't all you get in this issue. For example, who would have expected to find Werner Erhard of est and others on society's fringes striving to join corporate America? Writer Jeremy Main, that's who. His account of these new management trainers begins on page 95. Meanwhile, the FORTUNE 500 poll (page 90) quizzes chief executives about both the economy and the Administration's Persian Gulf policies. The CEOs, says writer Anthony Ramirez, are "refreshingly trenchant and optimistic."

Ramirez was one of many staffers who did double duty for this issue. Another was Myron Magnet, whose report on America's homeless begins on page 170. He and reporter Bill Sheeline crisscrossed the country talking to the homeless and to those who try to care for them. Says Sheeline, who studied New York's homeless while a student at Columbia Journalism School: "The problem is gaining on the solutions." But some communities do have programs that seem to work—they help these unfortunates help themselves. More such programs are needed, says Magnet. "Compassion alone is not enough."

KRISTINE LARSEN

Sylvia Nasar

DIRCK HALSTEAD

In D.C.: Ann Dowd and Lee Smith

JOHN ABBOTT

Michele McNally, Margery Peters

PETER MARLOW—MAGNUM

In London: Rik Kirkland

Marshall Loeb

MANAGING EDITOR

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THE ECONOMY: DOWN, NOT OUT

Stripped of bull-market wealth, consumers will cut back. But they won't provoke a recession—and FORTUNE sees some long-term benefits. ■ *by Vivian Brownstein*

OKAY, so the President did sound rather like Herbert Hoover on the day after. But let's face it, this time the economy *was* basically sound, and that will stand it in good stead now. Barring further catastrophic stock market declines, growth will slow but will not stop. Like many other economists, those on FORTUNE's staff actually see some good coming from the nightmare: Americans will spend less and save more, fundamentally strengthening the economy in the long run.

Make no mistake: The months ahead will be quite different and more perilous. FORTUNE has been consistently less optimistic than most forecasters, including Federal Reserve Chairman Alan Greenspan (FORTUNE, October 26). Before the crash, we expected real gross national product to advance 2.5% next year. Now we are looking for 1.8%.

That means $35 billion less in goods and services produced and close to a million fewer jobs created. It also means changes in the political landscape. The unemployment rate, which had dropped to 5.9% and was expected to stay there, is likely to increase to 6.5%. With no chance to spend on make-work programs, there will not be much the Administration can do about it. The year-to-year change also contains a couple of quarters with growth at a rate of less than 1%, dangerous territory where the economy could easily be tipped into recession.

The biggest damper on activity will come from slower consumer spending. The bull market made shareholders feel wealthier, and so helped underwrite an extraordinary spending splurge. Americans devoted all but 2% or 3% of current income to buying goods and services, and borrowed merrily to boot. They have spent $100 billion a year more than if they had saved at the long-term norm of 6% to 7%.

Our new forecast assumes the savings rate will bounce back to 4%. Consumers have been shaken enough by recent events to begin saving more than they have recently, though not as much as they used to. Polls of 1,000 people taken during the week after Black Monday by Sindlinger & Co., a consumer research firm, indicate that the 30% of householders who are stock owners were stunned; who knows

ROBERT HOWER—QUADRANT

Scaling Back

With growth slowing and jobs harder to come by, consumers, such as this shopper at Schottenstein's discount store in Columbus, Ohio, will look for ways to save more and spend less. Brisk business in basics will help keep profits growing decently next year.

A NEW VIEW OF 1988

	OLD FORECAST	AFTER THE CRASH
GNP growth	2.5%	1.8%
Unemployment, 4th qtr.	6.0%	6.5%
Inflation, 4th qtr. (GNP deflator)	5.0%	4.5%
Operating profit growth	14.0%	8.0%
Consumer spending	2.7%	1.7%
Savings rate	3.0%	4.0%

when they will recover? At the same time, says Sindlinger, the confidence of people who are not stock owners actually *improved.* Many have been getting better jobs lately, and at least for the moment expect that their fortunes will keep rising.

One caveat is that confidence may sink in the months ahead as people brood over the crash. Laurence H. Meyer, head of the St. Louis economic consulting firm that bears his name, is forecasting that consumers will lift their savings rate close to 5% next year and increase spending by less than 1%.

Despite the risks, this longest of peacetime expansions has been uncommonly resilient, and it still looks like a survivor.

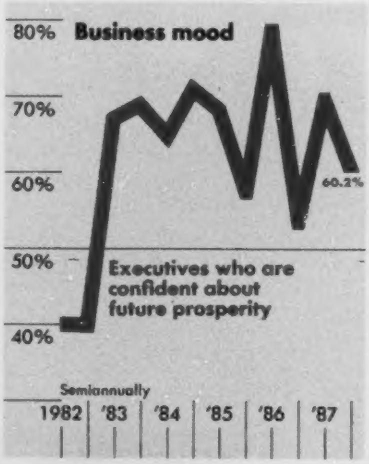
Assuming the 4% savings rate, FORTUNE has cut its forecast of 1988 consumer spending by a percentage point. We now look for an advance of 1.7%. The slowdown will help the improvement in foreign trade that is already under way. The volume of imports should shrink 4% in the coming year, while the volume of exports will rise 3%. Though climbing imports prices will keep the dollar balance from changing much, the gains in real net exports will ameliorate the damage to American businesses. After-tax operating profits, which had been expected to advance by 14%, should still increase by a relatively handsome 8%.

Shortly before the crash, FORTUNE found in its semiannual survey of the business mood that 60% of the executives responding—200 chief financial officers in large and small businesses—expected the economy to continue prospering. That was not down much from the 70% of last spring. More to the point, we resurveyed a large part of the fall sample a few days after Black Monday and found no change in attitudes. (Chief executives of FORTUNE 500 companies remain steadfast, too; see page 90.) Still, it seems reasonable to assume that the optimism will erode at least a bit, and that capital spending will be somewhat less robust.

Business will cut outlays for inventory, contributing further to the slow growth. Our quarterly survey indicates that heavy-goods producers, especially, are carrying oversize stockpiles. For all companies the excesses average around 2%. But managers will not cut drastically; they apparently will let the inventory-to-sales ratio decline slowly.

One widely celebrated benefit of the crash is the possibility that Congress and the Administration will truly pare the federal budget deficit. FORTUNE is assuming a compromise that goes beyond Gramm-Rudman-Hollings—Grambo, as some people call it—though not so far beyond that it plunges the economy into recession. That means cuts of $25 billion to $30 billion from the so-called base line, which shows where the deficit is headed if current tax and spending policies remain unchanged.

Strictly on the numbers, though, the budget cutting may prove disappointing. Before the crash, the Congressional Budget Office was projecting that the fiscal 1988 base-line deficit would rise $25 billion. Washington may now pick up a bit of change from the capital gains taxes paid by the many people who unloaded stock they had been holding a long time. But when the effects of slower growth are factored in, other revenues will be less than expected, and some expenditures will be higher—unemployment compensation, for example. So the base-line deficit might increase by almost as much as the proposed reduction, leaving the deficit basically unchanged from fiscal 1987's $148 billion.



Still confident

The future looks promising to executives responding to FORTUNE's semiannual survey.

Will that apparent lack of progress destroy the confidence the cutting was supposed to inspire? Not necessarily, particularly if Congress and the White House plan another couple of years of cuts. Perhaps most important is that the results be achieved by leadership, not default.

ECONOMISTS are not sure if the crash makes the dollar more or less vulnerable to downswings. John Hagens, the chief of domestic forecasting at the WEFA Group, which studies such matters, sees both sides. He expects that lower U.S. interest rates will make dollar-denominated investments less attractive. But because growth will be slower here than abroad, the U.S. current account should improve by some $8 billion, which will tend to keep the dollar up. FORTUNE expects the dollar to drift down another 5% to 10% over the next year against such currencies as the yen, the D-mark, and maybe the Taiwanese dollar, reflecting the continuing high level of the trade deficit. Without such a decline, the trade deficit will not shrink as much as we project.

The outlook for inflation is somewhat better than it was before the crash. FORTUNE expects the GNP deflator, the broadest measure of price changes, to increase 4.5% next year; our old forecast was 5%. Consumer prices will increase a percentage point more than the deflator. Higher unemployment could lessen some of the pressure on wages next year. And to the extent that labor costs are higher, business will have a harder time getting customers to help pay for them.

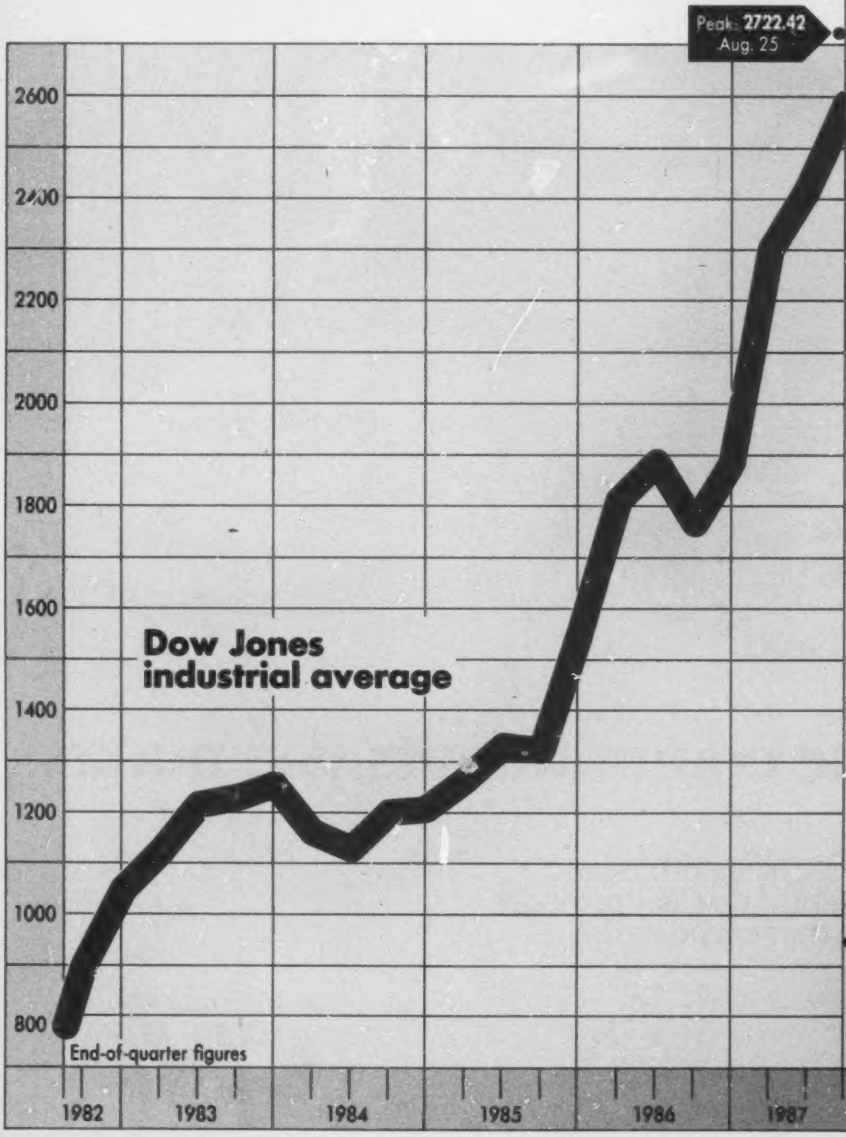
In a slow-growth economy, it does not take much to provoke recession. A plunge in the dollar, for example, could heighten inflation worries, driving interest rates up sharply and lowering spending for housing or capital goods. Even without dramatic events, Americans could turn gloomier. But this longest of peacetime expansions has been uncommonly resilient, and it still looks like a survivor.

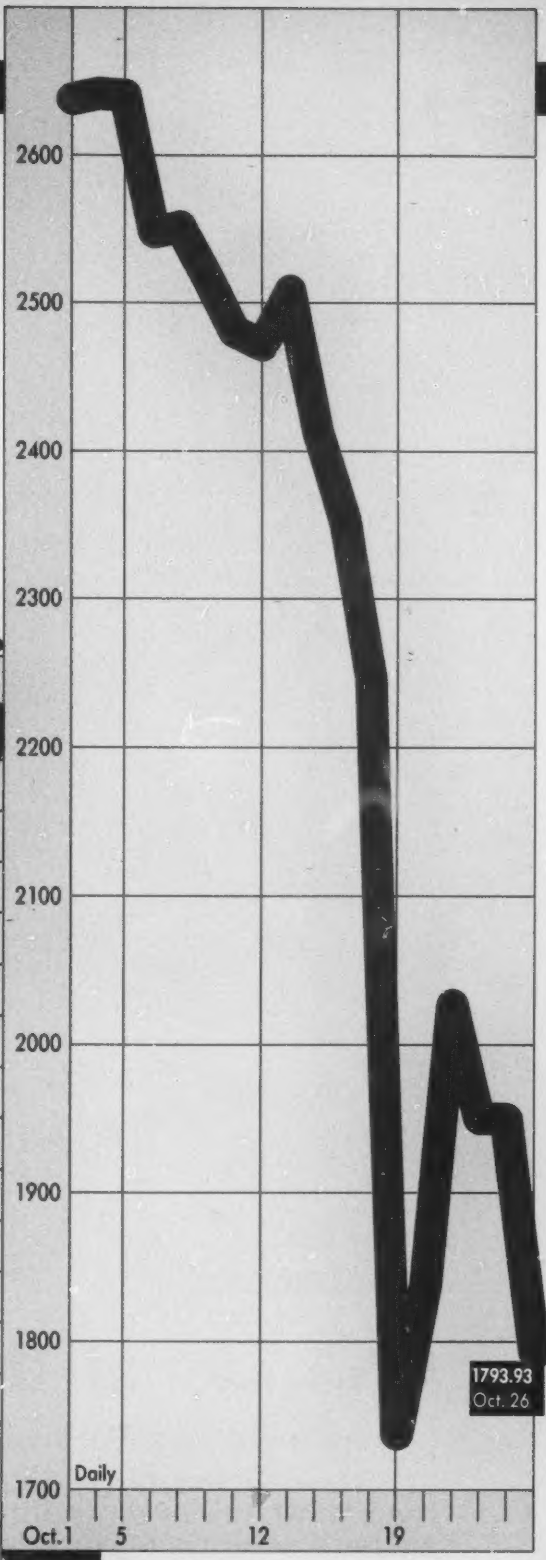
THE STOCK MARKET

CHARTING AN AVALANCHE

In hindsight it all looks so clear. Stock prices were perched precariously on high, foggy crags. They remain far above where the bull market started, but have tumbled to saner, let's hope safer, heights.

■ *by Wilton Woods*



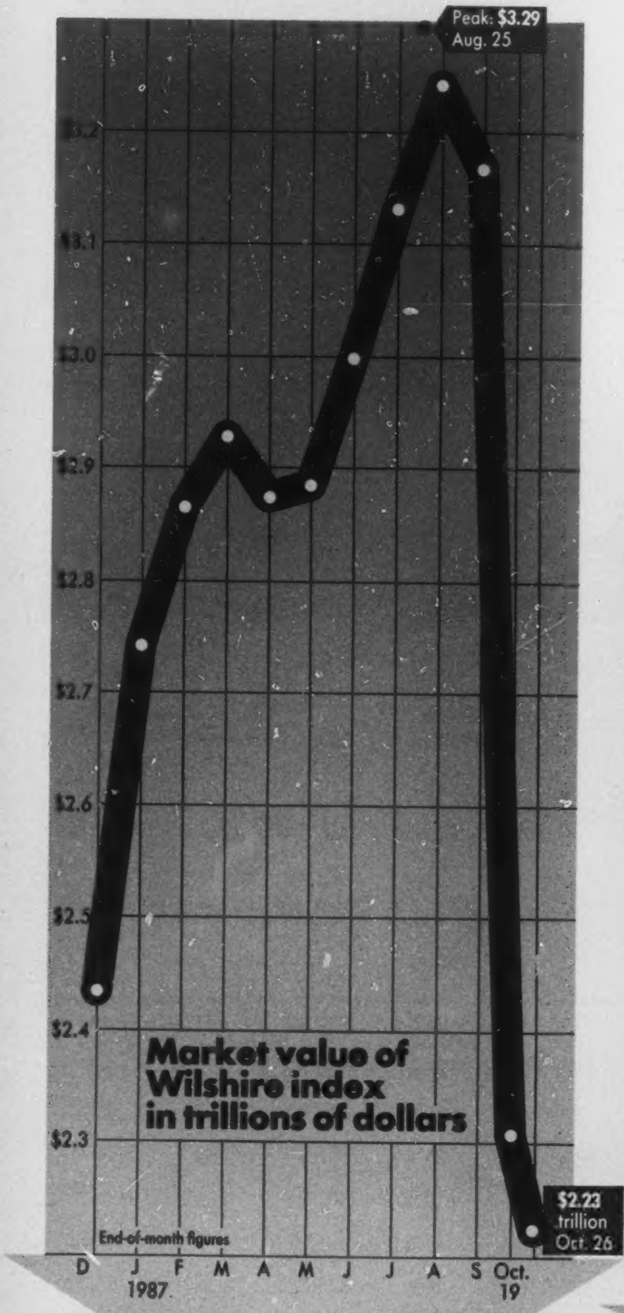


Stocks fell off a cliff . . .

Starting from 776.93 on August 12, 1982, the Dow Jones industrial average climbed to more than three times that level when the five-year bull market reached its peak. Then it lost its footing.

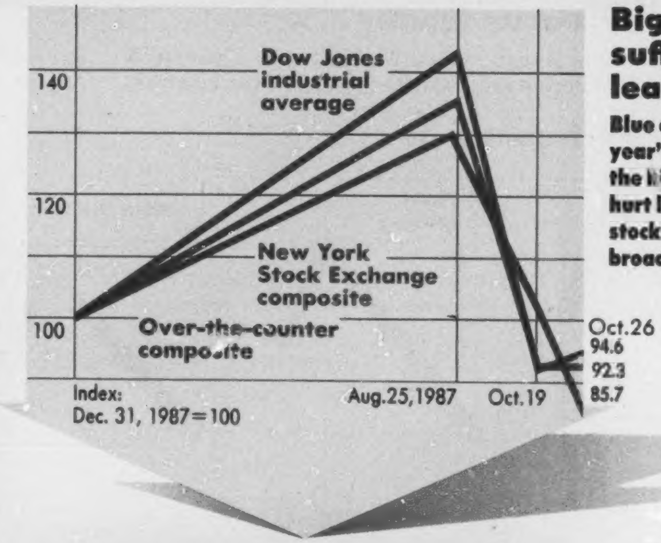
. . . and cost investors $1 trillion

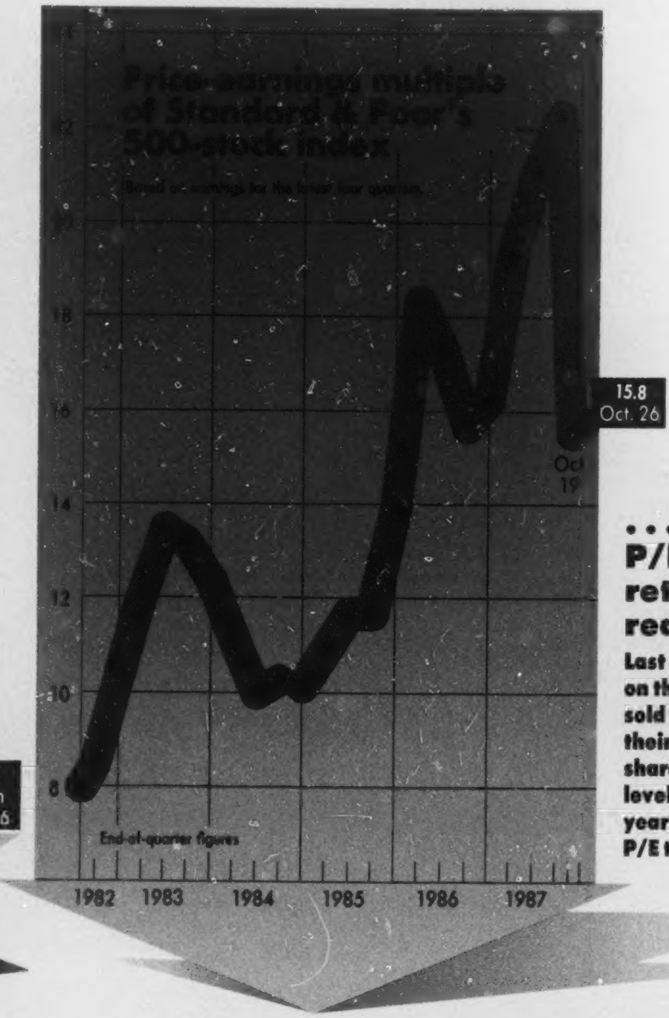
In a mere eight weeks after the market's August 25 high, the nearly 6,000 U.S. stocks represented by the Wilshire index lost one-third of their value.



Big stocks suffered least . . .

Blue chips led this year's charge up the hill and were hurt less than stocks in the broader indexes.





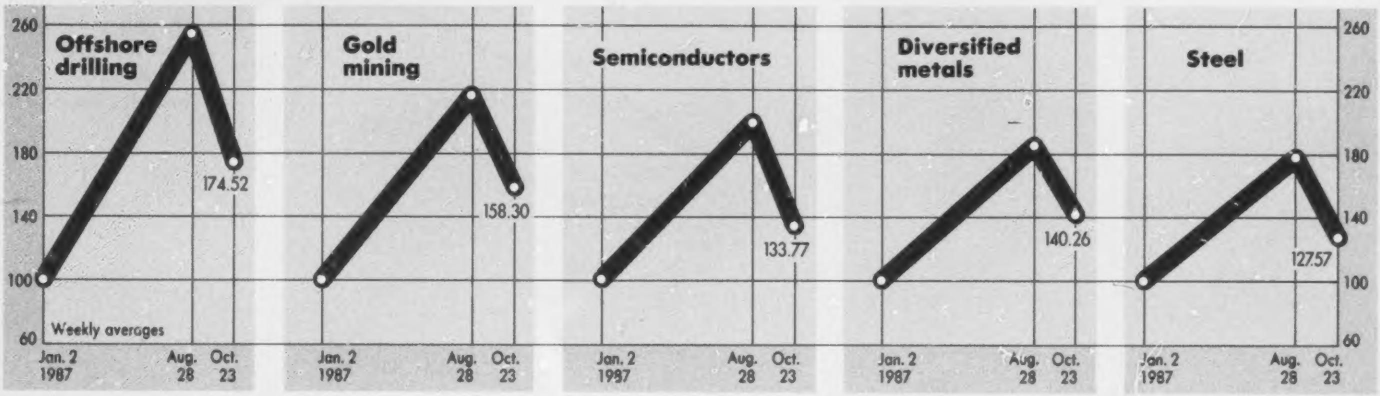
. . . and P/Es returned to reason

Last August stocks on the S&P 500 sold for 23 times their earnings per share, the highest level in 26 years. Then the P/E toppled.

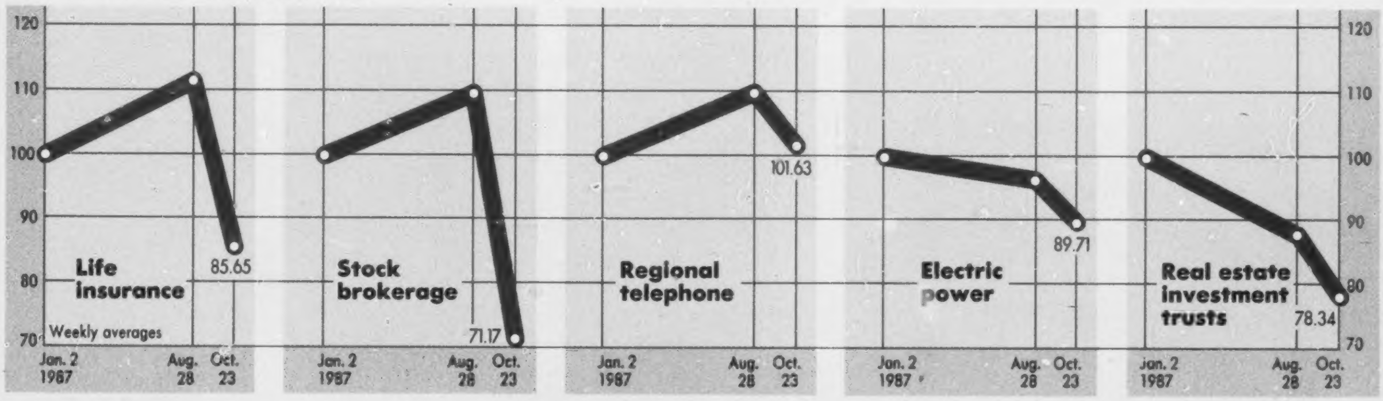
All suffered, but unequally . . .

The top five industry groups, among 91 tracked by Standard & Poor's, led the bull market this year. The crash left the highfliers better off than the five worst laggards were at market's peak in late August. Brokerage firms and life insurers felt the hardest blows.

The Best Performers



The Worst Performers



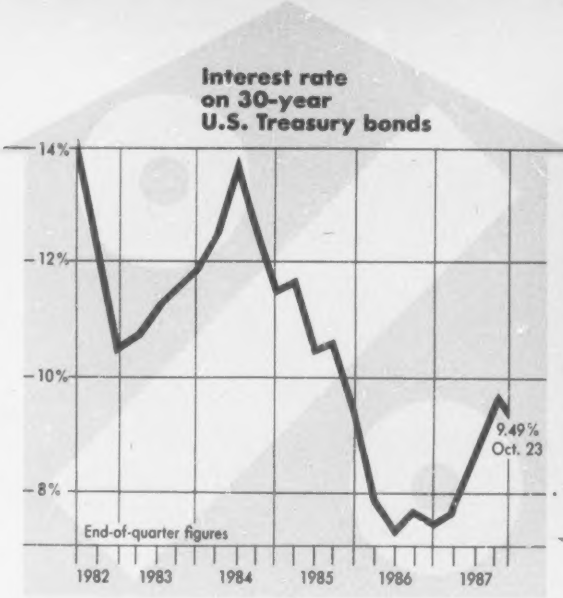
. . . while many still count blessings

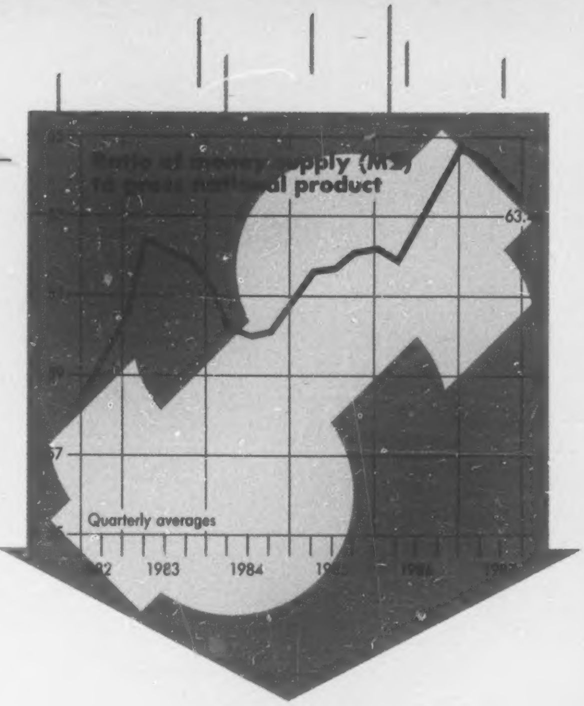
The ten leading performers among the 30 Dow stocks during the bull market's ascent all lost ground in the crash. But these blue chips remain well ahead of five years ago.

	The Bull Market Rise			The Crash . . .		and After the Crash		
	Share price Aug. 12, 1982	Share price Aug. 25, 1987	Percent change	Share price Oct. 19	Percent change from Aug. 25	Share price Oct. 26	Percent change from Oct. 19	Overall change since Aug. 12, 1982
Woolworth	$8.44	$56.50	+569%	$36.25	−36%	$32.25	−11%	+282%
Merck	$32.375	$207.875	+542%	$160.00	−23%	$155.00	−3%	+379%
Westinghouse	$13.125	$72.50	+452%	$40.25	−44%	$43.25	+7%	+230%
Philip Morris	$22.94	$119.875	+423%	$88.125	−26%	$85.00	−4%	+271%
Boeing	$11.67	$53.125	+355%	$38.50	−28%	$37.125	−4%	+218%
Coca-Cola	$11.58	$52.125	+350%	$30.50	−41%	$36.25	+19%	+213%
McDonald's	$13.58	$60.125	+343%	$36.375	−40%	$41.00	+13%	+202%
American Express	$8.94	$38.875	+335%	$22.50	−41%	$22.00	−2%	+146%
Du Pont	$30.50	$128.375	+321%	$80.50	−37%	$81.25	+1%	+166%
General Electric	$15.75	$65.625	+317%	$41.875	−36%	$42.625	+2%	+171%

Economic indicators flashed a warning . . .

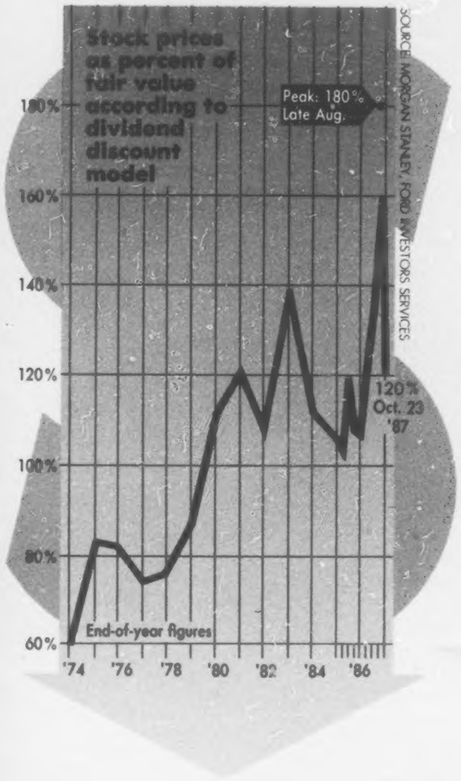
Interest rates (near right) fell until this year, nurturing the market, but then ominously turned up. Liquidity (far right), which also tends to lift stocks, rose until the Federal Reserve slowed money growth. Liquidity is the ratio of the money supply to GNP.


Interest rate on 30-year U.S. Treasury bonds

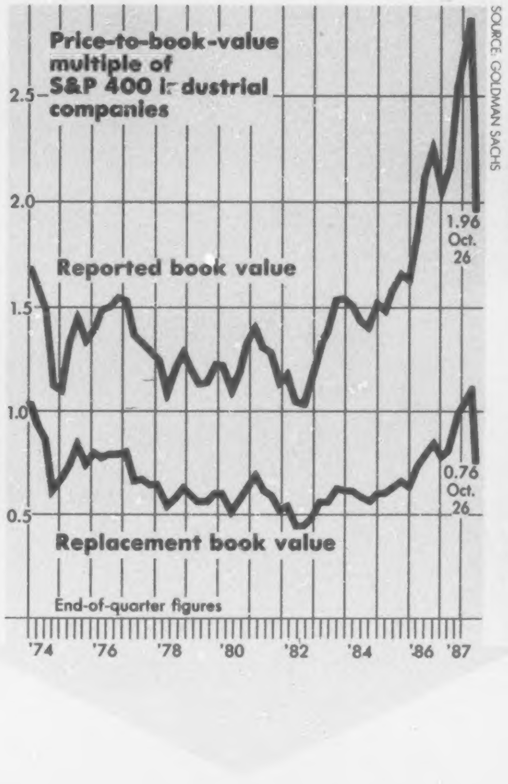

Ratio of money supply (M2) to gross national product

. . . and values look better now

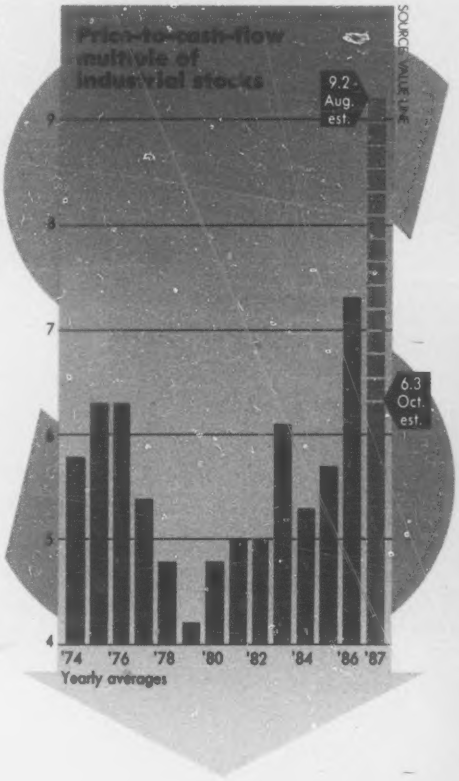
At recent peaks, stock prices were stratospheric when measured by traditional Wall Street altimeters of value. Now prices, though far from cheap, are out of the sky. The dividend discount model compares the expected returns on stocks with those on bonds. F


Stock prices as percent of fair value according to dividend discount model

SOURCE: MORGAN STANLEY, FORD INVESTORS SERVICES


Price-to-book-value multiple of S&P 400 industrial companies

SOURCE: GOLDMAN SACHS


Price-to-cash-flow multiple of industrial stocks

SOURCE: VALUE LINE

WHAT HAPPENED AND WHAT'S NEXT

Wall Street faces tougher times making money and doing deals. And it has to worry about regulators who may want to fix too much.

■ *by Alex Taylor III*

FINANCIAL PANIC. Just weeks ago the phrase was a history book curiosity that seemingly had no meaning in the modern age. No more. Stock markets around the world have just gone through a classic panic, unique in its high-tech mechanics and the magnitude of the price collapse but no different in substance or dynamics from those of 1929 and 1907.

What set it off? Pundits, politicians, and professional investors cite an array of causes. The failure of Congress and the Administration to deal adequately with the federal budget deficit. The stubbornly high U.S. trade deficit. Deepening crisis in the Middle East. Treasury Secretary James Baker's threat to force the dollar down sharply against the German mark. The pernicious influence of so-called program traders on Wall Street. Proposed tax legislation that could bring corporate takeovers, and even friendly acquisitions, to a dead halt. Tight monetary policy that left the markets starved for liquidity and helped push interest rates on government bonds above 10%.

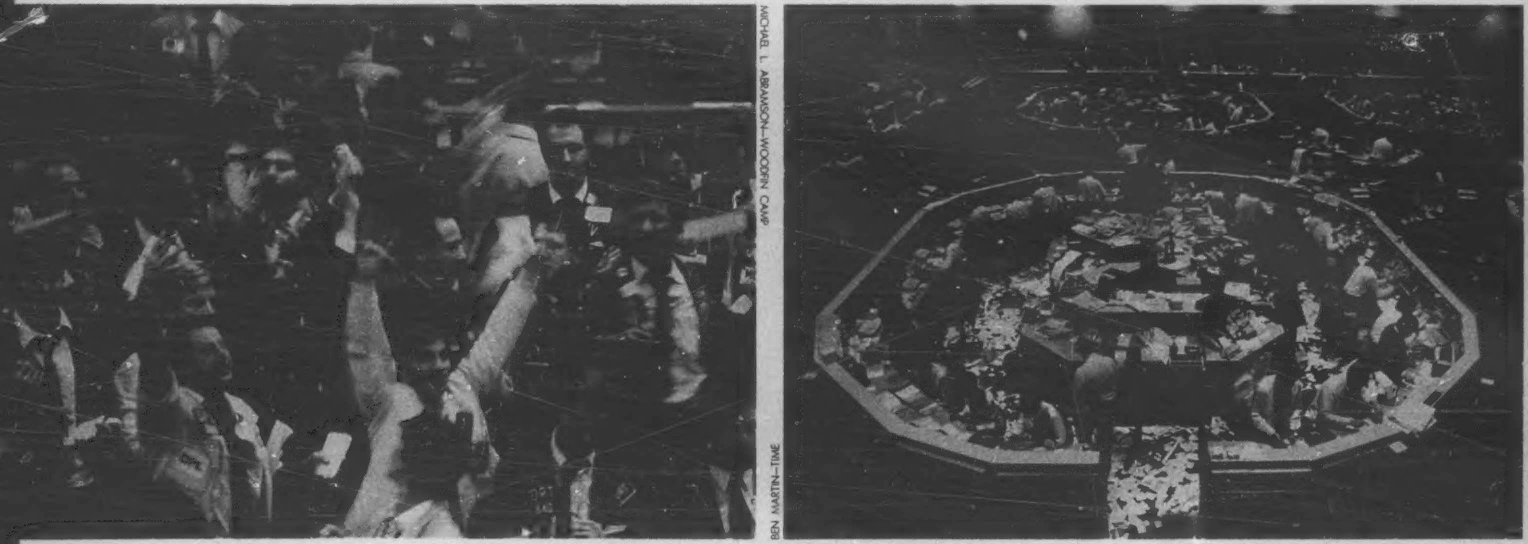
REPORTER ASSOCIATES *Christopher Knowlton and Sarah Smith*

Many of those surely affected the market. But the world will never *really* know why panic suddenly ruled, why the Dow Jones industrial average dropped 508 points on October 19 and not a week earlier or a month later. The most we can know is that stock prices had reached awesome heights, that many investors had been worrying for months that a drop was coming, and that suddenly a multitude tried to get out at once. As Warren Buffett, one of those most bloodied in the crash, observes: "When the tulip boom broke in 1636, did people in the Netherlands say they shouldn't have changed the discount rate?"

Even without the why, investors and policymakers have much to learn from what happened in the panic of 1987 and how it played out. Some lessons are startlingly different from the early impressions in the days immediately following the carnage. Overall, the securities industry served its customers well. But some parts of the market system failed utterly.

The industry—and the rules it operates under—are bound to change dramatically because of those failures, and in ways that will affect virtually everyone who uses the market. Understanding what really happened is essential to making sure the changes are the right ones. What the industry needs now is a fresh infusion of capital backing up market makers on the exchanges. It does not need sweeping new regulations or supervision.

The collapse really began on Wednesday, October 14, when the



MICHAEL L. ABRAMSON—WOODFIN CAMP

BEN MARTIN—TIME

Portrait of global panic: Frenzied futures selling in Chicago . . . caused computers to crash at the Pacific Stock Exchange in Los Angeles.

FRANK FOURNIER—CONTACT

Wall Street: Watch and worry

Dow tumbled 95 points. The release of disappointing trade statistics for August apparently spooked many investors that day. Rising interest rates also dragged stocks down by luring pension fund money out of the market. As money manager Jeremy Grantham of Boston's Grantham Mayo Van Otterloo said, "After the greatest bull market in history, U.S. Treasury bonds yielding 10% are as close as you can get to a free lunch." More pressure was coming via an esoteric trading strategy known as portfolio insurance. In the days that followed, portfolio insurance and "program trading"—the most common form of which is arbitrage between stocks and futures contracts on stock indexes—became the designated villains of the game.

FEEDING THE FEARS

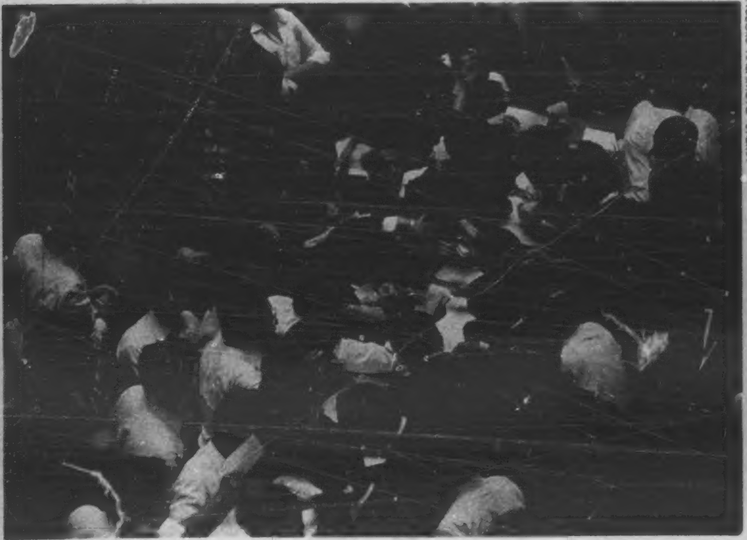
PORTFOLIO INSURANCE is a technique by which institutional investors, mostly pension funds, try to limit losses on their stock portfolios during down markets. The concept behind it is straightforward: As the stocks in a portfolio decline, the manager sells some and invests the proceeds in something safe such as Treasury bills. The further stocks drop, the more the manager sells, until he has shifted all his assets to T-bills.

But selling lots of stock—and then buying back when prices rise, the second part of the strategy—is costly and cumbersome. So the money management firms that provide portfolio insurance accomplish the same goal by using futures contracts on stock market indexes to hedge the portfolios. Devised just five years ago, stock index futures represent contracts to buy—or sell—a basket of stocks such as the Standard & Poor's 500 index at a specified time in the future. The contracts ultimately are settled in cash, not in the stocks themselves, according to how much the index rises or falls before the expiration date.

As stock prices decline, the insurance providers sell index futures short. If stocks go still lower, the price of the futures contract will also decline, and the pension fund will have a profit on its short position that offsets some of the loss on the stocks it owns. The more stocks fall, the more contracts the insurance providers sell.

The value of assets protected by portfolio insurance has risen explosively over the past two years, from about $15 billion to perhaps $60 billion. But that represents only about 6% of the money pension funds have invested in stocks (and 2% of the total value of stock outstanding before the crash). The insurance programs are run by a handful of money managers, including Wells Fargo, Bankers Trust, Morgan Guaranty, and Leland O'Brien Rubinstein, the Los Angeles firm that invented the technique.

In the tumbling market of October 14, portfolio insurers sold more and more futures contracts short. The steady selling of index futures probably helped drag stock prices lower, triggering still more selling of futures by insurers. Many critics of portfolio insurance say this chain of events was artificially contributing to the price decline. In fact, that is like blaming a murder on the weapon. It was the pension funds' decision to lock in their gains from the bull market as soon as prices started to slide that actually created the pressure. Once that decision was made, they likely would have had the same influence on the market whether they sold futures contracts or protected themselves the old-fashioned



NOBORU HASHIMOTO—SYGMA

Tokyo teemed with sellers but hardly any buyers . . .

PETER CHARLESWORTH—JB PICTURES

while battered traders actually closed the Hong Kong market.

P. PERRIN—SYGMA

TORREGANO—SIPA

P. PERRIN—SYGMA

Parisian faces were different but emotions identical. The market meltdown threatens the Chirac government's privatization plans.

way, selling the underlying stocks.

Risk arbitragers—the guys who load up on takeover stocks, hoping to make a killing—also played a role. Fear of tax proposals in Washington apparently persuaded some of them to pull out of the market. The Democrats on the House Ways and Means Committee had just approved a plan to eliminate almost all interest deductions for debt used in acquisitions. The stocks of takeover targets, including Dayton Hudson and Newmont Mining, tumbled even more than the Dow on Friday, October 16. And did the Dow tumble. The average dropped more than 100 points for the first time, on record volume of 338 million shares. For the week, the Dow was down 235 points, or 9.5%, the worst performance in nearly 50 years.

Many Wall Streeters saw disaster ahead. After the close on Friday, Peter DaPuzzo, the head of over-the-counter trading at Shearson Lehman Brothers, assembled his 60 traders, opened bottles of champagne, and told them to prepare for big trouble on Monday. Trading would likely be frantic and Shearson could take large losses by continuing to make a market in the 2,500 mostly small-company OTC stocks it trades. Market makers have to stand ready to buy when others are unwilling. Shearson had spent years, and lots of money, building its reputation in the OTC market. "Now," said DaPuzzo, "I want to make sure we keep our reputation going." But even DaPuzzo had no idea of what was ahead.

DON'T BLAME FOREIGNERS

THE TSUNAMI started in Tokyo when that market opened at 7 P.M. Sunday New York time, and grew as it rolled around the world through Hong Kong, Frankfurt, Paris, and London on its way to New York. Every foreign market was selling through the floor, making it absolutely certain, even before the opening bell, that Wall Street was about to get creamed. As the world economy has become increasingly interdependent, far-flung stock markets have come to move much more in tandem. Says William A. Schreyer, chairman of Merrill Lynch: "I never thought I'd get up and turn on the TV to see what Tokyo was doing. Now I do."

Panic was palpable by the time Monday's opening bell sounded on the New York Stock Exchange floor. More than 600 million shares changed hands that day as the Dow collapsed by 22.6%. Pension funds furiously sold stock. Individuals raced to cash in before their bull-market gains evaporated. So many sold mutual fund shares that Fidelity Investments, one of the largest fund managers, had to extend the time it took to pay customers from one day to seven, tapping bank credit lines to meet redemptions.

Takeover artists and leveraged buyout firms, which had given the market much upward propulsion, swiftly backed away from pending deals that made no sense in a crash. Carl Icahn, who had announced final terms of his bid to take TWA private on Friday, canceled the offer on Tuesday. Herbert and Robert Haft decided that they wouldn't pursue Dayton Hudson after all. Samuel Heyman, chairman of GAF, postponed his plan to take that company private. Risk arbitragers took their worst drubbing ever as the deals collapsed around them and they sold out at distress prices. Michael L. Goldstein, a security industry analyst at Sanford C. Bernstein, estimates that the risk arbitrage departments at Goldman Sachs, First Boston, Bear Stearns, Morgan Stanley, and Salomon Brothers, which had a combined inventory of about $1.5 billion of stock, lost at least $200 million. Others estimate the losses as high as $500 million.

ONE GROUP that apparently did *not* sell in force was foreign investors. Over the preceding 18 months, they had assumed a major role in sustaining the great bull market. In 1986, net foreign purchases of U.S. equities more than tripled from the prior peak to $18.6 billion. During the first six months of 1987, foreign buyers were even more ebullient, adding $18.4 billion to their U.S. stock portfolios. The psychological lift this buying brought far exceeded its pure dollar clout. Says Laszlo Birinyi, head market analyst with Salomon Brothers: "For time zone reasons, foreign investors tend to be most active in the first half hour of trading. They've been setting the tone for the market."

Many market analysts had worried that the foreigners could set a very different tone if they suddenly decided to dump U.S. stocks in favor of other assets. Foreign stock purchases did soften in August, when U.S. share prices peaked. But they did not lead the stampede. Says David Resler, chief economist at Nomura Securities in New York: "There has not been a flood of sell orders from Japan. This was a domestic U.S. selloff." Hector Sants, New York–based first vice president of Switzerland's UBS Securities, describes foreign investors as frozen "like rabbits caught in the headlights." By the time they got their bearings, most concluded it was too late to sell.

Equity-minded foreigners could find little refuge in their own markets, as the tsunami continued around the globe. Hardest hit initially were Singapore and Australia, whose markets fell roughly 30% in a week. Britain, Europe's biggest market, paid the price for leadership and fell 22%, the worst showing in Europe. The day after Black Monday the highflying Tokyo stock market suffered its steepest one-day drop in more than 30 years, but it ended the week down a relatively modest 12%. Not so lucky were investors in Hong Kong. That market shut down for four days. The day it reopened, prices dropped 33%. Closing in the face of trouble virtually guaranteed that the Hong Kong exchange will now be eclipsed by its rival, Singapore.

Perhaps the most frightening aspect of the panic was that it could have caused a total breakdown of the U.S. stock market. The most encouraging, plainly, is that the market did not fail, and that the NYSE traded an astounding 600 million shares on such a wild and treacherous day. The torrent of sell orders overwhelmed the specialists on the floor of the New York Stock Exchange. Specialists make sure that buyers and sellers come together in an "orderly" fashion. Unlike the OTC market makers, the specialists have monopolies. Each stock is handled by just one specialist firm, which gets a fee for every share it trades. In return for their monopolies, specialists are supposed to stand ready to sell from, or buy for, their own inventory when orders are out of balance. The NYSE specialists had lost millions fulfilling that role the prior week, buying stock from an excess of sellers and watching the shares decline in value.

NOTHING ORDERLY happened on Black Monday. The specialists who handle the biggest blue-chip stocks met with sell orders they could not begin to absorb. The specialists had little choice but to lower their bids as fast as the exchange's rules would permit.

They also had to buy enormous quantities of shares themselves. By the end of the day, the NYSE specialists were holding $1.5 billion of stocks, ten times the norm. Even so, many critics said that the specialists exacerbated the market rout by buying too few shares. Says the chief financial officer of a FORTUNE 500 company: "When the sell orders poured in, our specialist ran into a cave."

Some specialists undoubtedly shirked responsibility. But as a group they stood straight enough to facilitate more trading volume in a single day than took place on the NYSE in all of 1950. And, after the prior week's hit, the 52 specialist firms absorbed one-day losses of around $1 billion, roughly a third of their capital. The damage was so bad that the next morning the specialists were quietly advised that they could, when absolutely necessary, bend the rules that normally govern their trading. The message, in effect, was "Do what you have to do to stay solvent."

The NYSE specialists shined in comparison with their counterparts in the OTC market, the broker-dealers who make markets in unlisted stocks. That plainly was a losing proposition during the panic; market makers could be sure that the whole world was waiting to dump stock into their laps. So many opted out of the action.

As a result, volume in the OTC market did not increase nearly as much as it did on the NYSE, and prices jumped even more wildly from trade to trade. Brokers and institutional investors have complained that market makers

The Crash's Biggest Losers

LOSER	COMPANY	LOSS in millions
Sam Walton family	Wal-Mart Stores	$1,751.9
Leslie Wexner	Limited	$1,451.1
David Packard	Hewlett-Packard	$875.5
Donald Fisher family	Gap	$756.5
Ted Arison	Carnival Cruise Lines	$718.2
Edgar & Charles Bronfman	Seagram	$703.2
Rupert Murdoch	News Corp.	$617.6
Ewing Kauffman	Marion Laboratories	$484.7
August Busch Jr. family	Anheuser-Busch	$471.7
William Hewlett	Hewlett-Packard	$449.8
Milton Petrie	Petrie Stores	$422.1
Joan Kroc	McDonald's	$358.3
Warren Buffett	Berkshire Hathaway	$346.7
John Dorrance Jr.	Campbell Soup	$269.0
William Gates III	Microsoft	$254.6

Proprietors who hold on to their company stock were hard hit in the market slide. Retailers took big losses.

simply were not making markets in most stocks.

Two notable exceptions among the OTC market makers were Merrill Lynch and DaPuzzo's crew at Shearson, both of which got high marks up and down Wall Street for continuing to buy stocks. But preserving Shearson's reputation was costly. DaPuzzo says the firm's OTC operation lost as much in three days as it had made in the prior six months, and its inventory of stocks, normally about $100 million, leaped to $250 million.

ALEX QUESADA—WOODFIN CAMP

New York Stock Exchange Chairman John Phelan criticizes the trading techniques originated by the men on the facing page.

Legions of individual investors had problems getting phones answered as well. Brokerage offices were so busy that some callers never got through, and others finally delivered their orders in person. Even when they got orders to their brokers, investors couldn't be certain when they would be executed or at what price. A New York broker says he could not fill customers' orders on Black Monday because the two computer operators who relay them to the NYSE trading floor could not handle the incredible volume. Buy and sell orders piled up into a tall stack beside the operators, and once there could not be changed.

The market debacle had few heroes, but one turned out to be the Federal Reserve. Before the market opened on the morning after, Fed Chairman Alan Greenspan lessened the anxiety with a one-sentence statement that the central bank would provide all necessary liquidity. Then the Fed came through as promised, and with impressive finesse.

THE CALL THAT MOVES MONEY

AT 11:30 TUESDAY morning, the head federal funds trader at a major New York commercial bank, one of 40 "primary dealers" in government securities, got a call on his direct line from the Federal Reserve Bank of New York. He listened for a second. Then he covered the mouthpiece with his hand and shouted "Two-day system" as loud as he could.

Those words of money-market jargon spoke volumes for the 250 traders within earshot on the floor around him. "System" signaled that the Federal Reserve System wanted to buy Treasury securities for its own account, injecting new money into the market. This is the Fed's most immediate tool for controlling the money supply. "Two-day" meant that the purchases would be under agreements to sell the securities back to the owners two days later, which is what the Fed does when it wants to temporarily boost liquidity.

No less significant was the timing of the call. The Fed normally buys or sells at 11:40 each morning; traders call it "Fed time." Ten minutes early means something special is afoot, most likely that the Fed wants to buy more securities than normal and needs more time to process the bids that flow in from the primary dealers.

New York Fed officials bought every day that week and into the next, sometimes calling the primary dealers as early as 10 A.M. Their actions helped push both short- and long-term interest rates down about a percentage point in just two days. Yet the initial purchases were not unusually large. Says Donald J. Fine, chief market analyst at Chase Manhattan: "They are doing things they would do anyway, but they're doing them earlier in the day and visibly." The Fed was telegraphing its punches so no one had any doubts about the policy.

By contrast, Fed officials in Washington were nearly invisible during the week of the crash, but they were busy nonetheless. Among other things, they got on the phones and asked big banks to continue lending to ailing Wall Street firms.

If the Fed wore the white hat through the crisis, the black was pinned to the heads of the portfolio insurance crowd trading on the Chicago Mercantile Exchange. By most accounts, their actions created much of the fear that gripped investors and pushed stock prices down further than they otherwise would have gone. Early Monday, insurers and speculators sold so many futures contracts that the futures dropped 15% below the S&P index. Ordinarily, a discrepancy of just 0.5% would kick off enough futures buying to push the futures price back up into line with the index.

This buying would normally be done by program traders—lightning-quick arbitragers who rely on computers to monitor the relationship between the stock indexes and prices of index futures. When the spread between the two gets to 0.5% or more, as in the days before the crash, these arbitragers have an opportunity to lock in a guaranteed profit by buying huge quantities of the lesser-priced one and selling corresponding amounts of the higher-priced. This is the classic "riskless" variety of arbitrage, not to be confused with merger-related risk arbitrage.

The program traders are brokerage firms, pension fund managers, and other large financial institutions. They can profitably exploit slight price discrepancies because of the speed with which they trade. Their computers first tell them how many shares of which companies in the S&P index to buy or sell, and their brokers electronically transmit the orders through the NYSE's automatic order entry system (known as the DOT system, for designated order turnaround) to the specialists on the floor. The DOT system enables program traders to execute trades of hundreds of different stocks almost instantly. Simultaneously, program traders lock in their profits by placing an offsetting order for futures contracts at exchanges like the Chicago Merc.

By the close of trading on October 19, John Phelan, chairman of the NYSE, was worrying that program trading and portfolio insurance—and the stock-index futures they rely on—could have been a prime cause of the debacle. The next day he "asked"—it was tantamount to a command—NYSE members to stop using DOT for program trading arbitrage. Ever since, regulators and Congressmen have been saying that strict new controls are probably needed on index futures, and program trading has taken on the aura of the manipulative stock pools of the Twenties.

The wild drop in the S&P index futures contract almost certainly did feed investors' fears and cause more of them to sell. But the indictment of program trading and portfolio insurance seems off base—though it does conveniently strike at the Merc, a gnawing competitor of Phelan's NYSE. In fact, the problem may have been too little program trading, not too much.

NEEDED: MORE INSURANCE

UNLIKE SPECULATORS and investors, who move markets by buying or selling, program traders have a neutral effect on prices. For example, at the same time they are selling stocks on the NYSE, they are buying index futures on the Merc. That 15% spread between the S&P and the futures contract on Monday represented an unprecedented profit opportunity. Ordinarily they would have bought index futures and sold stocks until they had driven the futures up to the level of the S&P, and eliminated that scary specter in Chicago.

But the specter just kept sitting there because program traders *weren't* trading that day. They apparently were heavy sellers early in the session of the largest stocks that make up the S&P, adding to the pile of orders that swamped the specialists. But it proved impossible for them to get a clear fix on where stocks were trading at any moment. IBM, Exxon, Digital Equipment, and many other stocks that make up a significant portion of the S&P 500's value opened late. Throughout the session, frequent order imbalances brought further delays. At times, price information on the tape ran nearly two hours behind.

Since they could not be sure at what price they would end up selling stocks or buying futures, the program traders could not trade. Bruce Collins, head of equity arbitrage research at Shearson, says that to do so "would have been speculation, not arbitrage." Phelan has said that arbitrage program trading accounted for 15% of the Monday volume on the NYSE. Leo Melamed, chairman of the executive committee of the Merc, says the true figure was under 10%—less than normal.

Meanwhile, the gaping spread between futures contracts and the S&P index rendered portfolio insurance strategies unworkable. Most portfolio-insurance computer models indicated that the portfolios should have been almost completely hedged—that is, that the pension-fund clients should have been short index futures equal to nearly the total value of their stock portfolios. But the price gap, along with the difficulty of finding buyers for large futures positions at any price, rendered it impossible to hedge.

Most portfolio insurers told clients that they should forget about trying to hedge at least until the spread narrowed. Some pension-fund clients took that advice and stood pat. But others, fearful that further stock price declines would leave them with intolerable losses, opted simply to sell stocks outright. Says a portfolio insurance strategist with a West Coast firm: "One client who was concerned that the portfolio insurance wasn't working called us and said, 'If you can't cover us with futures, then get us out of the stock. We're not worried about details like execution costs. Just get us out.' "

Hayne Leland, who with partner Mark Rubinstein devised the first portfolio insurance strategies, says the NYSE acted "purposefully" to break the ability of program traders to perform their service. Another portfolio

ED KASHI

Hayne Leland devised portfolio insurance . . .

RUSSELL MONK

. . . by using an equation created by Fischer Black.

STEVEN BEGLEITER—TELEPHOTO

ANDY FREBERG

Dealmakers Henry Kravis (top) and Theodore Forstmann: refiguring the odds after the crash

insurer calls the controversy over program trading "a head-on collision between two highly efficient auction markets, the NYSE and the Merc"—a war over which will be the dominant market. Phelan says he took his action without regard to the Merc.

Though the breakdown of insurance cost pension funds money, they still have fared better than most stock market investors. One portfolio insurer says customers lost only a few percentage points more than the 5% to 10% that was supposed to be their maximum exposure.

The calls for government action in the aftermath of last week's crash have already reached peak volume. Every regulatory body having anything to do with the securities business is conducting an investigation. They include the NYSE itself, the Securities and Exchange Commission, the Commodity Futures Trading Commission, the House Energy and Commerce Committee, the House Banking Committee, the Senate Banking Committee, and a special panel appointed by President Reagan and headed by Nicholas Brady, chairman of the Dillon Read investment banking firm.

Though much remains to be understood, it seems unreasonable to talk about severely restricting the futures markets until it is clear that they really do cause trouble. Critics of index futures argue that they lead to more volatility in stock prices, but the case remains to be proved. The SEC has already made a special study of futures action during a nasty two-day drop in the Dow in September 1986. "What we found," says Commissioner Joseph A. Grundfest, "was that program trading and portfolio insurance had very little effect. I'm not saying that's what we'll find this time. The truth is what the facts say it is."

In the final analysis, portfolio insurance is nothing more than a dressed-up version of a stop-loss order—a standing order to sell a stock if it drops to a specified price—that has been around for decades. The futures trading used in portfolio insurance does indeed speed up trading. But so do the concentration of capital in the hands of institutional investors and computer networks that give traders access to newsworthy information the moment it becomes available.

Defenders of index futures argue that they play an important role in making markets more efficient by enabling pension funds and other investors to transfer some of the risk in stocks to speculators and others more willing to live with it. Says Fischer Black of Goldman Sachs, a creator of the options pricing model that Leland and Rubinstein used to develop portfolio insurance: "If you limit portfolio insurance, you will simply hurt investors—it hurts people to limit them to one market or the other."

THE CASE FOR REFORM

YET EVEN BLACK acknowledges that some reforms probably are needed at the Merc: "The way to solve the problems we're getting into mainly involves tighter margin requirements." Currently, only $20,000 in margin money has to be put up to control a contract worth more than $115,000. Black says the rule should be in line with the 50% margin requirements on stock purchases.

Congress and the regulators should not limit their inquiries to the futures exchanges. A second day like October 19 probably would have wiped out most specialists on the NYSE and brought the entire market tumbling down. It seems sensible to beef up their capital requirements, and it may also be time to break the monopolies and allow competition among many specialists in a single stock. But a whole new skein of regulation, always a danger with so many investigations under way, seems ill-advised.

Whatever happens in Washington, Wall Street has entered an era of profound change. In some ways, the new market looks dandy for dealmakers. Mark Solow, head of acquisition lending at Manufacturers Hanover, talks about "the tremendous opportunities" that will exist "once the stock market stabilizes." One buyer who hasn't been waiting for that is Michael Dingman, head of the Henley Group, who took advantage of tumbling prices by acquiring Santa Fe Southern Pacific stock in the market, adding to a block he accumulated earlier. And Sam Heyman, having scuttled the GAF deal, has been buying GAF stock in the market at about 60% of the price he would have paid in his going-private plan.

Another factor encouraging deals is the amount of money in the hands of some dealmakers. Theodore Forstmann, head of the big leveraged buyout firm Forstmann Little, is sitting with $500 million in equity capital and $2.5 billion in subordinated debt capital, and he can leverage these amounts to a total of at least $7 billion. Morgan Stanley recently raised $500 million for LBOs. The Blackstone Group has $600 million. Jerome Kohlberg, who left Kohlberg Kravis Roberts in June and from all appearances did it in dissatisfaction at the kind of deals the firm was backing, is raising $500 million. Carl Icahn has money: over $800 million lodged in the treasury of TWA.

Yet there are reasons to believe that takeovers and LBOs are on the wane. The biggest is the recent problems in the junk bond market—or the "wampum" market, as Ted Forstmann, no admirer, calls it. Some 30% or more of the typical LBO is financed with high-interest junk bonds, and in the panic the junk-bond market got powerfully difficult. At times there was nearly zero liquidity in the junk market. As a result, many junk bond investors weren't even trying to sell, since they would have had to unload at unacceptable prices.

Not surprisingly, the upheaval in the market has chilled new issues of junk. The only major deal done in the week of Black Monday was a $400-million issue by SCI Television, an offspring of Storer Communications. To make this deal fly, its sponsor, Kohlberg Kravis Roberts, had to offer interest rates that ranged up to 17.5%, 8.5 percentage points above prime. Even then, Drexel Burnham couldn't sell the whole deal and had to inventory some of the bonds itself.

The securities industry was having a bad year even before the crash. One reason was the bond market slump in April, which produced more than half a billion in trading losses. More fundamental, the industry's costs have been growing much faster than revenues, and the need for retrenchment was already obvious. With Black Monday came new losses of $1 billion, including the hit to risk arbitrage departments. Those losses were only partly cushioned by extra commissions on the huge trading volume, which Michael Goldstein of Sanford Bernstein estimates at $35 million a day through late October.

ANDY FREEBERG

Dillon Read's Nicholas Brady leads the investigation into the roots of the debacle.

The restructuring that began at some investment banks late last year could become much more draconian now. Windel B. Priem, head of the financial services division at the executive recruiting firm of Korn/Ferry International, says many firms will aim to cut expenses by 20% this year. Priem thinks the axes will fall hardest on Wall Street's yuppies—"the guy who is five years out of business school making $500,000, and all he's been doing is carrying someone's briefcase."

Unprofitable businesses will be eliminated altogether, as Salomon Brothers did in early October when it fired 800 employees and abandoned the municipal bond market. Investment banks may leave trading in commercial paper and certificates of deposit largely to commercial banks, which do the job at lower cost. In addition, Goldstein notes that few profitable innovations are coming out of the investment bankers' pipeline to replace the old businesses, adding that he cannot foresee the firms ever returning to their profitability of the early 1980s, when they earned pretax returns on equity of 50%.

Of all securities companies, the mutual fund managers probably survived the crash in the best shape. When investors cashed out of, say, a Fidelity Equity fund, most moved their money only as far as the nearest Fidelity money-market fund. Goldstein figures that 75% to 90% of the stock-fund sellers stayed within a family of funds.

Discount brokers, on the other hand, were badly bruised. Among the hard hit was Charles Schwab, which reported it suffered $22 million in losses during the crash. The brokerage couldn't handle the load of trades and telephone calls coming in as the market collapsed. Quips Schreyer of Merrill Lynch, hardly a disinterested observer: "People were running in here last week begging us to charge them 50% higher commissions."

HOW SAFE ARE THE INVESTORS?

BROKERS and customers are likely to squabble about what happened in the crash for months. Trades that were lost (DKs, for don't knows, in the industry's jargon) and questionable trades (QTs) exploded. At Merrill Lynch, DKs and QTs were ten times normal. When two firms disagree about a trade or the computers don't confirm it, the brokers have to go to the floor and resolve the matter in person. The NYSE says QTs on Black Monday totaled 3.4% of the 202,084 transactions. The usual percentage is half that.

Joseph Arsenio II, executive vice president of Birr Wilson Securities in San Francisco, expects there will be thousands of complaints about trades executed at prices other than what customers specified. "It used to be the broker was always wrong and ate the loss," says Arsenio. "But given this disaster, that attitude may turn around. Brokers can claim the crash was an act of God." Some investors who held stock on margin complain that brokers sold them out at a loss without giving them a chance to put up more money. A group of Florida investors has sued Bear Stearns for $100 million, claiming it did just that. Bear Stearns says the suit has no merit.

For all the turmoil, investors apparently need not worry about the safety of their accounts. The Securities Investor Protection Corporation, or SIPC, which insures brokerage accounts up to $500,000, is flush with $390 million, a $500-million credit line, and a statutory right to borrow $1 billion from the Treasury. Only one firm that deals with the public—a small outfit in Grand Rapids, Michigan—has collapsed in the crash.

In Europe the growing trend toward wider share ownership among individual investors probably has suffered a major setback, though just how major will depend on the ultimate extent of the market's slide. Since 1979, Margaret Thatcher's privatization drive has wooed seven million new investors into stocks. Some four million French investors, most first-timers, have snapped up the Chirac government's sales of more than $8 billion of shares in ten state-owned companies over the past year. At a minimum, as David Skinner, chairman of Edinburgh money managers Martin Currie observes, "these individual shareholders are going to be reluctant to spread their wings for some time to come."

Investors are bound to be more reluctant everywhere, and that is potentially the greatest cost of the panic of 1987. Vibrant stock markets perform a vital function in generating capital for investment and innovation. By offering broad opportunities for investors, they entice funds into the market and reduce the cost of capital for corporations. Venture capitalists back entrepreneurs in startup companies largely for the chance of eventually going public and cashing in. That process has brought us Apple Computer, Genentech, Immunex, and many others in recent years. A weakened stock market makes for fewer benefits from the initiative and creativity that are the miracle of a capitalist system. ■

THE FORTUNE 500 CEO POLL

STILL BULLISH AT THE TOP

Though eager for Washington to "do something" about deficits, chief executives continue to expect higher profits and no recession.

■ *by Anthony Ramirez*

Rohr's Todd

Greyhound's Teets

Murphy Oil's Sweeney

JOHN ABBOTT

Hasbro's Hassenfeld

DESPITE the market plunge, chief executives interviewed for the FORTUNE 500 CEO poll, the second in a series, are mostly upbeat. They expect no recession next year, think company profits will exceed this year's, and believe the Dow Jones industrial average will recover some lost ground, though it will not return to the giddy August peak of 2722. They have steady nerves when it comes to the Persian Gulf. Most think the U.S. is showing the right degree of resolve in those roiled waters.

That does not mean the CEOs have no beefs with Washington. "We're heading toward Brokes-ville," growls Harry Todd, chairman of Rohr Industries, an aerospace manufacturer. Like other executives, Todd believes President Reagan and Congress must cut the federal deficit not only to bring order to U.S. fiscal affairs but also to calm world financial markets rattled by Black Monday.

Says John Teets of Greyhound, the bus manufacturer and consumer products company: "We elected these officials to make the tough calls. I make the tough calls in my company. They should make the tough calls in government." Cuts should come even if they fall close to home. "You'd be awfully busy cutting before you ever got out of the farm subsidies and other goodies in the Agriculture Department," says Robert Sweeney, whose Murphy Oil owns 40,000 acres of mostly subsidized cropland.

The poll was conducted Thursday, Friday, and Monday following the October 19 stock crash by Clark Martire & Bartolomeo, opinion researchers in Englewood Cliffs, New Jersey. The 80 respondents were picked from among the FORTUNE Industrial 500 and Service 500.

In the first poll last August, when the stock market was near its dizzying high, top executives were about evenly divided on whether share prices would be up or down a year hence. Now most look for some recovery, but not a return to the stratosphere: 38% expect the Dow to range from 1500 to 2000 one year from now, and a whopping 53% see it at 2000 to 2500. Says Stephen Hassenfeld of Hasbro, the toymaker: "The market will languish for a while, and I think it should, because it was way overpriced."

Market gyrations haven't shaken the CEOs' faith in the economy. Close to the same percentage in October (78%) as in August (84%) say they do not expect two or more consecutive quarters of decline in GNP by the end of 1988. But Peter Buchanan of First Boston, the investment banking firm, speaks even for the optimists when he says, "There's got to be some chance of a recession because of the emotional impact on consumer confidence of what's happened to the markets."

Their bullishness stems in large part from the relatively bright prospects they see for their own companies. Wallace Barnes of the Barnes Group says he doesn't expect a recession because his order book is so fat. His company makes precision parts for the aerospace, appliance, automotive, and agricultural equipment industries, so Barnes regards it as a mirror of the economy. Many CEOs share Barnes's optimism: 53% believe 1988 profits will exceed this year's by more than 10%; 29% expect an increase in the 1% to 10% range.

The CEOs are nearly unanimous in their support of the Reagan Administration's retaliation against Iranian attacks on American-flagged vessels in the Persian Gulf. Fully 91% say U.S. policy is neither too timid nor too aggressive but "about right." Says Finn Caspersen of Beneficial, the financial services company: "To achieve credibility, we have to protect our interests and those of our allies." But, adds Teets of Greyhound, "I don't want to bomb Iran tomorrow because a guy shot a hole in a ship."

WHAT SHOULD the government do to close the budget and trade deficits, stabilize the dollar, and strengthen the securities markets? When asked that open-ended question, nearly all the executives felt that Washington ought to do something. Says Buchanan of First Boston: "Congressional leaders and the President have to sit down and come up with a strong action plan. Crisis usually helps to focus the mind."

Nine out of ten CEOs advocate some combination of spending cuts and tax increases. "Some middle-class entitlements have to be reconsidered," says Caspersen of Beneficial. Hasbro's Hassenfeld says he is a strong supporter of the military but believes the Defense budget could be cut because "it's been going up at such a fast clip." One dissenter is John Bryan, chairman of Sara Lee, the food company: "I don't think the President will or should change his fundamental position on taxes."

REPORTER ASSOCIATE *Julianne Slovak*

Most chief executives believe that the trade deficit also needs strong intervention by the government, though they are pretty vague on prescriptions. Only 13% suggested that the U.S. should force trading partners to open their markets to American goods. Bryan of Sara Lee is in the minority on trade policy too. He says the trade deficit will "correct itself."

Computerized trading and complicated speculative instruments, like index futures, are part of what ails the financial markets, at least according to some CEOs. "If you prune away those speculative devices," says Todd of Rohr, "you begin to get back to a much less volatile market, and the quick-buck Charlies will go back to Las Vegas where they belong."

The tricky ways of playing the market remind Wallace Carroll of 1929, when he was 22 years old. "Margin calls did the job then, program trading will do it now," says Carroll, 80, one of the few CEOs who expect a severe recession or depression. His company, Katy Industries, is a conglomerate that has among its products Jacuzzi spas, a business that would be especially hurt if sybaritic yuppies find their paychecks crimped. Accordingly, Carroll has paid off $54 million in bank loans and delayed capital spending. He plans to keep inventory lean. "I wouldn't be taking all these steps if I hadn't gone through the Great Depression. But once burned, twice shy." Even CEOs who don't expect another depression might do well to follow Carroll's injunction to his staff: "Nag the hell out of your overdue accounts." F

Q **RECESSION**

Do you expect a recession—that is, two or more consecutive quarters of decline in real GNP—by the end of next year?

A	
Yes	17%
No	78%
Not sure	5%

Q **PROFITS**

How do you expect your company's 1988 profits to compare with its 1987 profits?

A	
1%-10% higher	29%
More than 10% higher	53%
1%-10% lower	8%
More than 10% lower	1%
No change Not sure	9%

Q **THE MARKET**

Where do you expect the Dow Jones industrial average to be a year from now?

A	
Below 1500	1%
1500-2000	38%
2000-2500	53%
Above 2500	7%
Not sure	1%

Q **FOREIGN POLICY**

Is U.S. policy in the Persian Gulf:
A. too aggressive
B. not aggressive enough
C. about right

A	
A	4%
B	5%
C	91%

Q **THE DEFICITS**

What, if anything, should the government do to close the U.S. budget and trade deficits, stabilize the dollar, and strengthen the securities markets?

A (MOST FREQUENT RESPONSES)	
Reduce spending	34%
Reduce spending and raise taxes	34%
Pressure trading partners to open their markets	13%
Regulate or outlaw program trading	13%

First Boston's Buchanan

Beneficial's Caspersen

GWENDOLYN CATES

Sara Lee's Bryan

MICHAEL L. ABRAMSON

Katy's Carroll

■ COMPANIES THAT SERVE YOU BEST • THE HOT PRODUCTS OF [redacted]

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DECEMBER 7, 1987

FORTUNE

THE DOLLAR AND THE DEFICITS

What to Do

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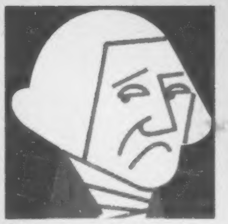

"Here's the Treasury Department leading the easy-money parade! It scares the daylights out of the whole world."

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"We took a good look at the American system and adopted many of its features."

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"I'm a very bad customer, always looking at the jobs people do and the way they do them."

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"It's a killer condom."

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"I haven't had any pangs yet over loss of power and prestige and perquisites."

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"The propensity to gamble is always increased by a large prize vs. a small entry fee, no matter how poor the true odds."

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Cover: Illustration by Robert Crawford.

THE EDITOR'S DESK

"Mary's children" toast Johnston (center) with Benjamin (lower right) in New York and in . . .

Chicago . . . *Los Angeles . . .* *Tokyo . . .* *Paris . . .* *and London.*

THIS IS a love letter. It is written for, and about, a young lady named Mary. Young because, although she has worked for our company for almost four decades, she has a contagious vitality that infuses the whole staff. Some people never age. Alas, young Mary Johnston has chosen to retire after 32 years as FORTUNE's chief of reporters.

Her title hardly suggests all her roles. She has been the guardian of this magazine's standards of accuracy, as well as the staff's chief mentor, confidante, confessor, and model for civilized behavior. When confronted with a particularly nettlesome problem, seven managing editors and hundreds of others at FORTUNE over the years have had the same instinctive reaction: "Ask Mary." My eminent predecessor, Bill Rukeyser, says, "Mary never took any guff from the editors." Another former managing editor, Louis Banks, calls her "straight shooting, straight talking, and morally tough."

That is an apt description for an elegant Texan who is a born reporter. Mary graduated from Rice University (which she later served as a member of its board of governors) and spent six years covering the courthouse and other beats for the Houston *Post*. After traveling the world for a year and writing articles for the *Post* and the *Christian Science Monitor* from such countries as Iran and Poland, she joined our sister magazine, *Time*, in 1949 and two years later moved to FORTUNE. She became chief of our large reporting staff in 1955 and was named to the Board of Editors a year later.

The ability to find and hire exceptional people is Mary's special genius. Her first hire was Carol Loomis, then a recent graduate of the University of Missouri School of Journalism and now widely acclaimed as one of the nation's best financial writers. In all, she has hired 62 members of our current staff, most of whom are shown in the photos above. They include assistant managing editor Ann Morrison and nine other members of the Board of Editors, as well as our representatives in Los Angeles, Chicago, Tokyo, Paris, and London. They also conspicuously include Mary's superlative deputy for 15 years, Evelyn Benjamin, who succeeds her as chief.

Mary could spot a terrific talent at 60 feet. She has always been willing to interview any serious applicant and seek far more than formal credentials. Mary looked for curiosity, humor, a willingness to ask any question without embarrassment. She wanted people who weren't frightened by numbers, but that didn't stop her from hiring philosophy and art history majors (she found that many of them made the best reporters). She also hired lawyers, MBAs, Ph.D.s—and some who had no degrees at all. After an interview, she liked to follow an applicant to the elevator, to see how he or she walked. "The way people walk," says Mary, "tells a lot about their attitude and confidence."

Another recent retiree, former Time Inc. editor-in-chief Henry Grunwald, says this: "Mary has given more to FORTUNE than almost anyone I can think of." She leaves her legacy on the pages of this magazine and in the form of all those staff members, whom she calls "my children." Since this is the kind of place where people like to stay for many years, Mary's children will be here to practice her lessons for quite a while—well into the 21st century.

Marshall Loeb

MANAGING EDITOR

JOHN ABBOTT (TOP), GWENDOLEN CATES, MICHAEL SALAS, CAROLINE PARSONS, PIERRE PERRIN—SYGMA, IAN BRADSHAW (BOTTOM, LEFT TO RIGHT)

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MONEY & MARKETS

TRYING TIMES FOR JUNK BONDS

The biggest and best have recovered from their Black Monday blues. But investors are still leery of the junkiest junk and of bonds to finance leveraged buyouts.

■ *by Ford S. Worthy*

A QUICK READING of the indexes that junk bond dealers compile to track the performance of those high-risk, high-yield securities leads to only one conclusion: Though pummeled along with stocks in the October crash, junk bonds have bounced back, just as they did shortly after the Ivan Boesky scandal roiled the junk market a year ago. By early November, Drexel Burnham Lambert's index of 110 junk bonds showed that prices were almost back to their precrash levels.

What Drexel's index, which is made up of the largest issues in the less-than-investment-grade universe, does not show is that important segments of the junk market have not rebounded—and may never. The prices of some bonds sold to finance leveraged buyouts fell like bricks and show no signs of turning into hot-air balloons. A pending $1.5-billion junk bond offering for the leveraged buyout of Southland Corp. fell apart in early November, and other LBOs could be in trouble (see following story). Another important slice of the junk market is made up of bonds issued by thinly capitalized, small to medium-size companies. Many of these bonds were still down 10% by mid-November, and some were down much more. For now at least, it appears these debt-heavy companies will find it harder, and more expensive, to raise money.

DEBORAH FEINGOLD

Fred Joseph *of Drexel Burnham is still a junk fan.*

The sudden aversion to the most tarnished junk reflects three post-crash realizations. The stock market collapse immediately devalued the assets of all companies—including the assets that some junk bond issuers had counted on selling to pay down debt. The collapse in stock prices also makes it less likely that companies will be able to pay off debt by selling new equity, as many junk issuers have done over the past two years. And a slowdown in the economy, which is more likely after the crash, would shrink the cash flows of plenty of junk issuers that have little maneuvering room even in a growing economy.

Mutual fund managers, who control some $31 billion in junk bonds, according to Lipper Analytical Services, led the rush for the exits on Black Monday. The managers feared that their shareholders would bail out en masse, so they scrambled to sell bonds in order to be ready to redeem shares. But for most, the stampede never came. The shareholders apparently were less rattled by the crash than the fund managers.

All investors who sold discovered a painful truth about the junk market: The bonds they most wished to be rid of were the hardest to unload. Buyers especially shunned the weakest of the small credits—issues with less than $100 million in bonds outstanding, a category that comprises perhaps 15% of the total junk market. Says Melvin Mogel, who runs U.S. Life's $100-million junk bond portfolio: "Some of these names trade by appointment only." When the crash came, many brokers in the junk market weren't making appointments.

One broker who apparently was buying, however, was Drexel, which vaulted into the investment banking big leagues by virtually creating the junk bond market and is the largest dealer of all. Money managers say that Drexel had pulled back from the junk market several months before the crash, but moved in again after prices tumbled. Why had Drexel pulled back? Says Ken Urbaszewski, a mutual fund manager at Kemper Financial Services: "I think Drexel correctly foresaw that low-grade bonds would get cheaper."

Drexel itself speaks only in the vaguest ways about what it has been doing. Of reports that it had cut its bond inventories, Larry Post, a senior vice president in Drexel's high-yield group, offers this: "Maybe we sensed that the market had a little correcting to do." And has Drexel been a big buyer recently? "We have $1.25 billion in excess capital now, so if we think the market is cheap—as we do now—we can jump in with both feet if we want to." Drexel Chief Executive Fred Joseph maintains that the junk market is just fine. "The overall high-yield market is in good health, with trading volume the strongest it's been in two years," he says.

The odds are that Drexel's inventory

REPORTER ASSOCIATES *Rosalind Klein Berlin and Sarah Smith*

doesn't include many bonds issued by the 24 companies that FORTUNE identified in a special study last March as particularly vulnerable to default (see table). Houlihan Lokey Howard & Zukin, a Los Angeles firm that helped prepare that list, estimates that these "atomic" bonds dropped an average of 8% in October. The average total return (including interest payments) since February has been minus 10%. Five of the atomics have defaulted on junk bonds with a face value of approximately $300 million. Bonds issued by ten others recently traded at less than half face value—close to what a bond typically trades for after defaulting.

Many investors in junk see the October meltdown not as a signal to sell but a beckoning to buy. With interest rates on junk rising while the rates on government bonds have been falling, the spread between the two has widened to near-record levels. Devotees of junk say the large spread guarantees that well-diversified investments in high-yield bonds should outperform government bonds even in the event that the most extreme predictions of defaults come true.

But even the most avid junk collectors are becoming much more selective. Fred Carr, chief executive of First Executive Corp., a West Coast insurance company that has invested heavily in high-yield bonds, says he has invested in only 15% of all new offerings this year—down significantly from prior years. Carr and most other big players in the market are still hungry for junk bonds. But they want to make sure that those promised high yields are more than just promises. F

Atomic Bonds Revisited

In the nine months since FORTUNE *identified these 24 junk bond issuers as "atomic," or especially vulnerable to default, five have indeed gone critical. Most of the others still look hazardous.*

STEVEN GUARNACCIA

COMPANY	PRINCIPAL AMOUNT in millions	DESCRIPTION	PRICE % of face value 2/1/87	10/1/87	11/2/87	STATUS
Alleco	13.0	10.0% bond due '97[1]	82	63	68	
American Healthcare Management	80.0	15% bond due '04	84	34	27	In default
Cannon Group	41.4	12.375% note due '94	74	28	19	
Care Enterprises	16.0	16% note due '94[1]	109	89	85	
Compact Video	80.0	12.75% bond due '96[1]	100	92	80	
Consolidated Oil & Gas	2.2	12% bond due '95	43	64	66	
Consul Restaurant	5.8	13% bond due '92[1,2,5]	41	72	65	
Lifestyle Restaurants	4.7	13% bond due '97[1,2,5]	52	85	74	
Michigan General	110.0	10.75% bond due '98[1]	56	35	29	In default
Pay 'N Save	145.0	7.125% bond due '06[2]	60	64	49	
Pennsylvania Engineering	6.1	5% bond due '93[1,2]	30	25	20	
Penril	18.0	10.875% note due '93[1]	86	47	43	In default
Po Folks	15.8	11.5% bond due '04[1,2]	62	45	43	
Pope Evans & Robbins	35.0	13.5% bond due '02[1]	85	62	61	
Preway	50.0	13.875% bond due '99[1]	77	53	49	
Quanex	96.1	15.25% bond due '99[4]	95	105	95	
Reading & Bates	60.0	8% bond due '95[1,2,3]	28	39	39	
Spendthrift Farm	30.0	12.5% bond due '94[1]	21	16	15	In default
Texas International	34.8	10% note due '93	90	90	88	
Thousand Trails	12.5	14.625% note due '92	57	52	44	
Wean	16.8	5.50% bond due '93[1,2]	38	48	44	
Western Union	22.9	10.75% bond due '97[1]	62	47	41	
Westworld Community Healthcare	30.0	14.5% note due '95[1]	71	8	11	In default
Winners	25.0	8.25% bond due '03[1,2]	48	42	30	

Sources: Houlihan, Lokey, Howard & Zukin and Merrill Lynch

1 Subordinate 2 Convertible 3 Eurobond 4 Mortgage bond 5 Acquired by another company

LBOs ARE TAKING THEIR LUMPS

Leveraged buyout companies are now facing pinched cash flows, reduced prices for assets, and a suddenly cautious junk bond buyer. Were their critics right after all? ■ *by Carol J. Loomis*

IN THE LAND of leveraged buyouts, Black Monday brought down the curtain on Act 1 (light drama, with touches of comedy) and raised it on Act 2 (heavy, heavy). An audience generally skeptical of LBOs is waiting for the denouement. The critics have long complained that these deals serve little economic purpose beyond enriching management, underwriters, and lenders, and that the companies have become so prodigiously leveraged with debt that they could not withstand a financial storm. The principals of the LBOs have responded by chanting their mantra, "Cash flow, cash flow," and flashing deal-generated profits as prodigious as the debt. But it's crunch time now.

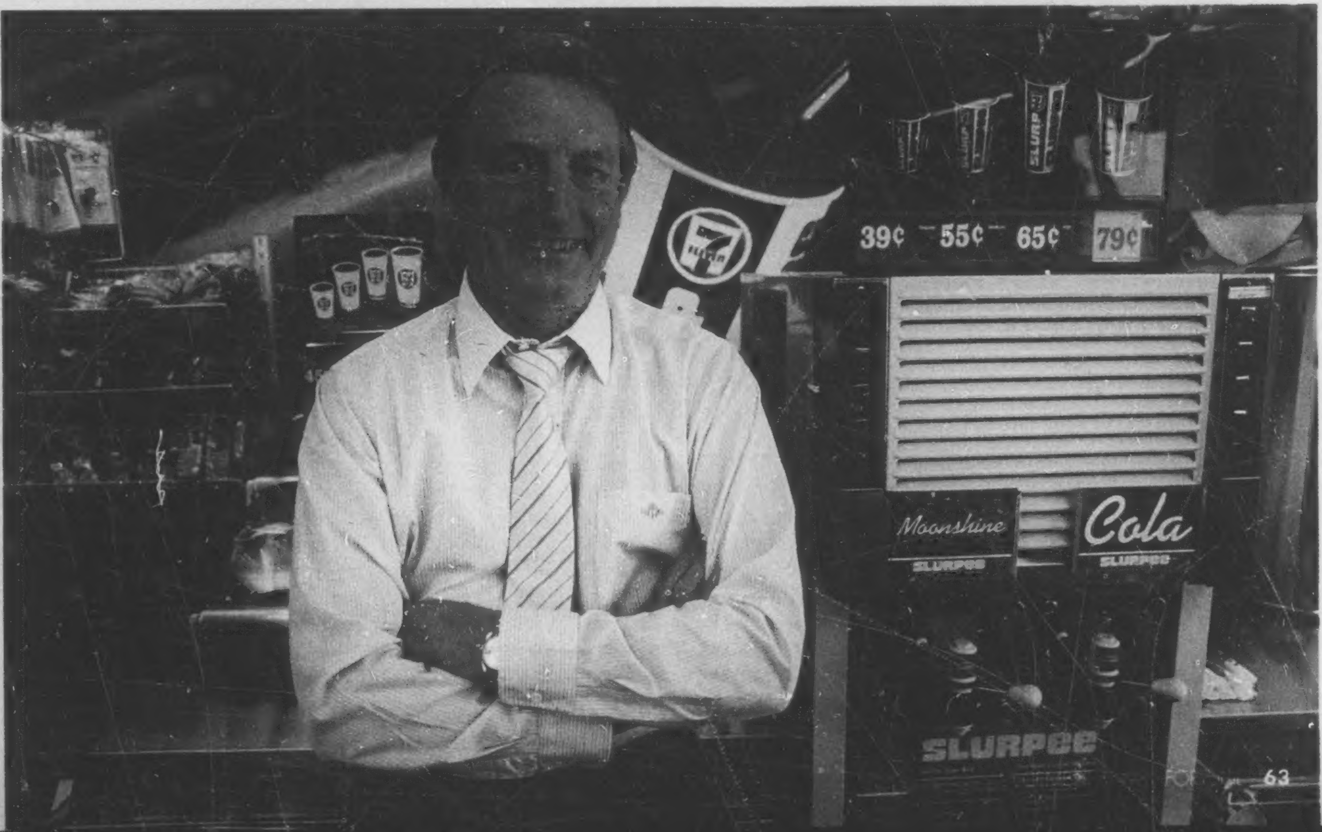
The stock market crash, in its countless reverberations, threatens the cash flow of the LBOs. Should the crash be a harbinger of a recession or a slowdown in economic growth, the operating profits that the LBOs need to pay interest on their debt would be cut. More immediately, the crash has impaired the ability of LBOs to sell off divisions and raise the large hunks of money typically required for debt repayments. What the investment banking trade calls "exit strategies"—the routes that the sponsors of LBOs use to cash out their investments—are also a problem. One exit is a public offering, of which not too many are likely to be made soon. Another is a refinancing that might require the company to issue junk bonds.

Alas, since the third Monday in October, fears of a recession and doubts about the creditworthiness of many leveraged companies have sent the junk bond market into a state of shock (see previous story). In mid-November, one concern that was trying to complete an LBO, Southland Corp., owner of the 7-Eleven chain of convenience stores, had to scuttle its plan to issue $1.5 billion in junk bonds. The bonds could not be sold, even at rates of 18%.

Southland is worth examining closely, for it illustrates the intricate dangers of trying to pull off an LBO at this particular moment. As in most LBOs, Southland was trying to go

Buyers refused *his junk bonds and now Jere W. Thompson, Southland's CEO, must find another way to complete his buyout of the company.*

SHELLY KATZ—BLACK STAR



COMPANY	TYPE OF DEAL	DATE BEGUN	PRICE (millions)	CURRENT CAPITALIZATION* Debt (millions)	Equity	STATUS REPORT
Beatrice	LBO by Kohlberg Kravis Roberts	4/86	$6,200	$3,900	−$126	A rousing success. But the crash could knock down the price of the company's domestic food business, now up for sale.
Safeway	LBO by Kohlberg Kravis Roberts	8/86	$4,900	$3,600	−$18	Plans that the company had to go public soon may now gather some dust. Capital spending has been cut severely.
Southland	LBO by Thompson family	7/87	$4,900	$4,700**	$213**	The company could not sell junk bonds to complete its deal. The next step is uncertain.
Borg-Warner	LBO by Merrill Lynch Capital Partners	4/87	$4,400	$3,700	$194	The company's bonds slipped recently as investors brooded about a $2-billion debt repayment due in 1988.
Owens-Illinois	LBO by Kohlberg Kravis Roberts	2/87	$3,700	$4,400	$180	The company is trying to pile leverage on leverage by buying Brockway, but antitrust approval is needed.
R.H. Macy	LBO by management	7/86	$3,700	$2,800	$264	A sluggish economy tends to hit retailers hard. The company is holding down hiring and battening the hatches.
Jim Walter	LBO by Kohlberg Kravis Roberts	8/87	$3,400	$3,300**	$150**	A pending deal, for which Drexel Burnham is urgently peddling junk bonds. The prognosis is unclear.
Burlington Industries	LBO by Morgan Stanley	5/87	$2,800	$2,900**	$125**	Around $900 million in assets must be sold. The first plant to go was offloaded to a pleased competitor.
Harcourt Brace Jovanovich	Leveraged recapitalization	5/87	$2,600	$2,900**	−$1,160**	The company paid a big price to do its deal, but is banking on a strong cash flow from operations and major cost cutting.
Holiday	Leveraged recapitalization	4/87	$2,600	$2,800	−$777	A program of selling real estate assets is about 80% complete, but getting rid of the rest may be slow going.
Lear Siegler	LBO by Forstmann Little	12/86	$2,100	$725	$200	A rarity: a deal that didn't use junk bonds. After $1.2 billion in asset sales, the company is largely down to "keepers."
Supermarkets General	LBO by Merrill Lynch Capital Partners	4/87	$2,000	$1,900**	$199**	Traditionally a well-run market leader, it needs to cut capital spending as an LBO and is taking the risk of doing so.

*Latest figures published. **Pro forma figures.

An Equity-Light, Debt-Laden Dozen Deals

Some LBOs have paid off a portion of their debt, as this table of megadeals from the last two years shows. Beatrice and Lear Siegler were among those able to sell assets before the market went sour and thus pare their debt. More recent buyouts are still loaded up. Four of these companies actually have negative net worth. The leveraged recaps that Harcourt and Holiday went through had the effect of obliterating their equity and then some.

private using a mountain of borrowed money to buy out the public shareholders. In such ventures, management and LBO sponsors—a Kohlberg Kravis Roberts, say—normally contribute a sliver of equity capital, enough to make up about 10% of total capitalization. The rest comes from bank loans and subordinated debt. Meanwhile, a vast collection of midwives, including investment bankers, commercial bankers, lawyers, and sometimes the sponsors themselves, collect enormous fees for aiding this exotic birth.

It ordinarily takes two steps to get an LBO out of the womb. In the first, the sponsors make a tender offer for perhaps 70% of the company's outstanding stock. At Southland, a tender for two-thirds of the company took place last July at $77 a share, a 40% premium over the $55 the shares were trading at before the buyout was announced. Making the tender and sponsoring the buyout was a shell company called JT Acquisition, formed by the Thompson family, whose sire (Joe) founded Southland. JT Acquisition financed the tender with $2 billion borrowed from a group of banks and a $600-million "bridge loan" from investment bankers Goldman Sachs and Salomon Brothers.

REPORTER ASSOCIATE *Terence P. Paré*

JT ACQUISITION then revved up for the next step that included securing permanent financing, buying the remaining Southland shares, and merging JT Acquisition with Southland. In this part of the deal, the shareholders still holding the common were to get about $61 in cash plus preferred shares in the new, private Southland. In other words, the old shareholders were to supply some equity capital to help buy themselves out. The company expected to issue $1.5 billion in junk bonds to pay the $61 a share and to pay off the bridge loan.

As a private company, Southland's capitalization was supposed to be about $4.9 billion. Interest charges were expected to run to $530 million in 1988, causing Southland a $225-million loss for the year. Sounds grim, but that's ordinary stuff for LBOs. Unfortunately, the Thompsons were trying to sell the junk bonds just as the stock market went through the most *extra*ordinary decline ever. Prospective junk buyers withdrew in alarm, suddenly apprehensive about every aspect of the deal, including Southland's ability to meet its interest payments and to sell about $1.1 billion in assets to help out cash flow.

In the end, there was no acquisition of the remaining shares and, for now at least, no merger. The banks and the two investment bankers are sitting with $2.6 billion in loans made to JT Acquisition, which now owns 70% of Southland but does not as yet have control of the company's assets and earning power with which to service its debt. The Southland saga is not over and the players are making urgent efforts to see that the show goes on. But critics of LBOs and of the huge fees they generate for Wall Street are chortling to see Goldman and Salomon trapped in their $600 million bridge loan. Caught with them are a few of their institutional customers on whom the two firms had laid off part of the risk. Around Salomon, these folk are known as "the bridge club." The hand they are holding now is none too good.

Southland's troubles and those of some other recent deals stem partly from the bull market that prevailed earlier this year. Sponsors were tendering for shares at premiums to stock prices that were already astronomical. The $77 that the Thompson family offered for Southland stock last summer was nearly 20 times 1986 earnings, a steep multiple for a company that had not been showing a lot of growth. In April, Supermarkets General, owner of the Pathmark chain, went private by paying stockholders 29 times earnings; Burlington Industries, the textile company, topped that in May with a price that was 39 times earnings.

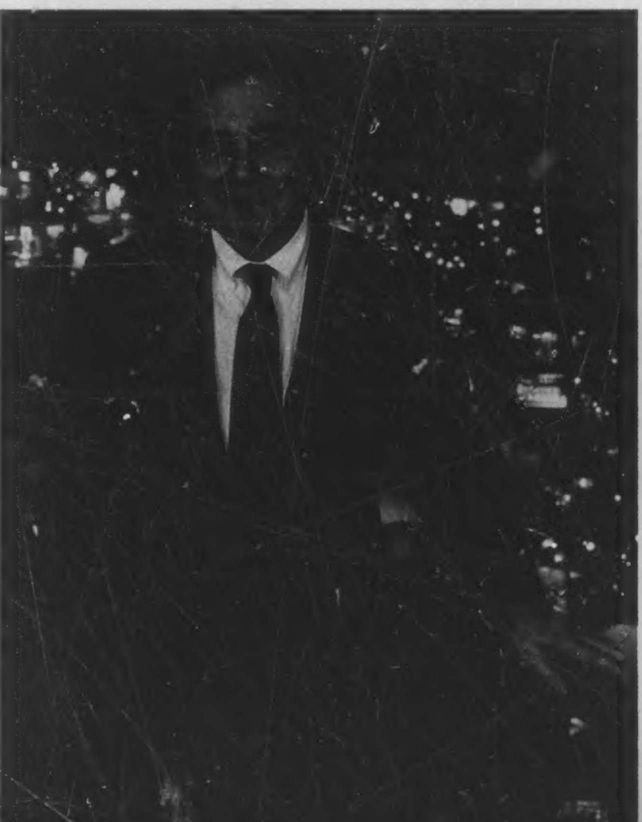
LBO sponsors still thought the deals worth doing because they believed enough cash could be squeezed out of operations and sales of assets to service the debt. Nonetheless, prices got so high this year that even some of the principals cried folly. One absurd series of events occurred at Jim Walter, the Florida housing and construction company. Kohlberg Kravis Roberts, the biggest LBO sponsor, and Paine Webber, a relative newcomer to the game, went at each other in a bidding war to take Jim Walter private.

WHEN Paine Webber pushed its bid up to $69 a share, or 16 times earnings, Jim Walter's management publicly protested that the price would saddle the company with more debt than it could handle. Jim Walter's board agreed and accepted KKR's lower bid of $60 in August. The sight of directors rejecting a higher offer for a lower one must have thrilled shareholders. But as it happens, the buyout may not be completed anyway. KKR was selling junk bonds to finance the purchase when the stock market crashed and the high-yield buyers backed off. Like the Southland deal, this one is also in jeopardy.

No big LBO completely escaped the effects of Black Monday—not even Beatrice, a highly successful buyout and at $6.2 billion the biggest of the bunch (see table). Donald Kelly, the deal magician who is Beatrice's chairman, hawked most of its assets months ago when stock and deal prices were still levitating, and has so far negotiated sales of about $6 billion. He has yet to sell the crown jewel, the U.S. food business, including Hunt-Wesson, Tropicana, and Swift-Ekrich. Only a few months ago there was speculation that Kelly could peddle these goods for as much as $4 billion, a feat that would raise total profits on the Beatrice deal to roughly that amount. But today, such logical buyers as Ralston, Heinz, and Pillsbury are selling 25% to 35% below their 1987 highs. Having been marked down themselves, they will surely shave any bids they make for other operations. No telling now how many rocks the crown jewel will bring.

Whatever Kelly garners from the sale will be dessert, but many other LBOs are still trying their teeth on the first course. Burlington Industries went private this year, in an LBO sponsored by the Morgan Stanley investment banking firm, to escape raider Asher Edelman and Dominion Textile of Montreal, a Burlington competitor. A large part of Burlington's $2.9 billion in debt comes due swiftly: $650 million by next June, another $250 million a year later. Morgan Stanley proposes to meet those commitments by

Finkelstein of Macy *is hoping his LBO escapes shoppers' slump.*



PETER FREED—PICTURE GROUP

Jovanovich of Harcourt *is thinking debt service, not charity.*

WALT JOHNSON—PICTURE GROUP

selling $900 million in Burlington assets.

But this deal closed officially only in early October, and the financial world began to question whether Burlington and Morgan Stanley could find buyers. An answer came in early November, when the company announced that its most modern denim plant would be sold for $205 million. The buyer? None other than that Witch of the North, Dominion Textile. Neither Morgan Stanley nor Burlington relished dealing with this enemy. But Morgan Stanley liked the price and, besides, thought that Burlington's bondholders would welcome proof that an asset sale was still possible.

ANOTHER high-wire act is Borg-Warner, a deal engineered by Merrill Lynch Capital Partners last spring. Borg-Warner has $3.7 billion in debt, of which $2 billion comes due in 1988. The company has talked at times of refinancing its huge chemical division. But such a scheme would require a healthier junk bond market than now exists. In the weeks after Black Monday, that $2 billion appeared to be weighing on the minds of bond investors and Borg-Warner's 12.75% junk bonds slid from around 93 to 84.

At some price, Borg-Warner, Burlington, and other LBOs will unload assets. Their creditors will see to that. But they will also have to look to operating earnings to make up for any cash shortfall from the sale of assets. That means the companies will be bearing down with new ferocity on cost-cutting programs they already have in place.

Harcourt Brace Jovanovich, the publisher that wiped out its equity in a leveraged recapitalization to evade British publisher Robert Maxwell this year, is preparing to make the ultimate sacrifice. Chairman William Jovanovich has decided to sell the company's airplanes. *Grant's Interest Rate Observer* reported that one of its readers asked a rude question at a recent analysts' meeting: "If you need the planes, why are you selling them? If you don't need them, why did you buy them?" Harcourt's answer was not totally to the point. But an adviser to the company says that in the midst of cost cutting, it is necessary for management to show that it too is tightening its belt. Among the belts getting attention are philanthropic contributions: Harcourt is canceling them all at least through 1988.

MICHAEL L. ABRAMSON—WOODFIN CAMP

Beatrice's Don Kelly *still has his crown jewel to sell.*

The belt brigade is also at work at R.H. Macy, a 1986 LBO. Says a manager in Macy's New York headquarters: "We had been running especially lean around here since we went private. But the minute the stock market did what it did, things really went on hold. Budgets are looking supertight. The message is, 'Use your pencils down to the nub.' There used to be rumors here about the company going public pretty soon. I guess we've heard the end of that for a while."

And that's the way it is at one of the more flourishing LBOs. Macy's has just concluded what its chairman, Edward S. Finkelstein, calls "a very good year." Definition? After interest charges of $500 million on $3 billion in debt, the company lost only $14 million, instead of the $63 million it forecast when the buyout was done. In LBO land, such are the yardsticks used to measure progress.

Capital spending would be falling under the ax in today's post-crash environment had not the typical LBO, as a first order of business, already shredded expenditures in order to beef up cash flow. Usually the shredding has been accompanied by explanations that the munificent spending of the past will carry the company through the future. Sponsors of LBOs tend to define the future as the number of years it will take them to exit this deal, at which point other poor souls will have to worry about making capital improvements.

In the nine months ended in August, Safeway, a 1986 LBO, spent $160 million on new stores and capital improvements, less than half the amount it spent in the same period last year as a public company. Supermarkets General, whose stores have always been exceptionally well run, spent $160 million in fiscal 1986 and expected to spend $285 million in 1991. Merrill Lynch Capital Partners, which took the company private this year and now controls it, has cut the forecast for 1991 to $165 million. It remains to be seen what happens to a business that must invest heavily in new stores and modernization, or run the risk of losing out to competitors who are spending freely.

LBO sponsors are now more likely to be around long enough to discover how their strategies turn out. Many of the exits are boarded up for the moment. Robert Mancuso, 40, one of the seven Merrill Lynchers who sit on the Supermarkets General board, believes the world has changed radically. He recalls fondly how Merrill Lynch took Denny's, the restaurant chain, private and then sold it off within a space of two years. But, says Mancuso: "The words 'long term' have been redefined as a result of October 19. The long term may be five to seven years now instead of two." Traditional thinkers who cling to the notion that long term might even exceed seven years will not find in that statement much evidence of radical change. ▣

STEVEN BEGLEITER—TELEPHOTO

KKR's Henry Kravis *has one buyout deal he's not grinning about—Jim Walter.*

COMPANIES THAT SERVE YOU BEST

Customer coddling is the hot new competitive weapon. As these champs show, providing great service is more difficult, costly—and lucrative—than most managers realize. ■ *by Bro Uttal*

WHEN David Robinson, a New York art dealer, failed to pay his American Express bill for September, American Express called to find out why. "Well," Robinson began, "I just sent you $800. The other $5,372 is for rugs I bought during the summer in Marmaris, on the coast of Turkey. But now I've had them appraised, and they're worth less than half what I paid. The appraisers are afraid of lawsuits and don't want to certify their estimates. What do I do?"

The voice at the other end of the line was calm and kind. "I'll note the dispute in your file. Just write us a letter and summarize the appraisers' estimates." No suspicious questions, no pressure for immediate payment, just an offer to help Robinson solve a problem on the other side of the world. Until the conflict is resolved, American Express isn't demanding the disputed amount.

To a lot of executives that sounds like a crazy way to run a business. But far from costing money, such extraordinary customer service helps American Express earn the fattest gross profit margins in the credit card business. That lesson is sinking in on a growing number of managers. As global competition intensifies and companies around the world invade each other's markets, cost and quality differences among all sorts of goods and services are shrinking. The company that coddles customers best has a competitive edge.

Last summer the Gallup Organization polled senior executives at 615 companies on the importance of eight different factors over the next three years. The winner by a mile: service quality, picked by 48%, well ahead of productivity and government regulation. Remarkably, even executives who turn out goods, not services, said that offering their customers better service will be nearly as important as making higher-quality products.

This new concern with service comes none too soon for most consumers. They're fed up. The Yankelovich Monitor, an annual survey of 2,500 consumers that focuses on social trends, reports that among seven service industries, only supermarkets rose in perceived quality in recent years. Restaurants, hotels, and department stores stagnated, while airlines, banks, and cable TV operators dropped. Technical Assistance Research Programs Institute of Washington, D.C., which has studied complainers for nearly a decade, finds that the service operations of many companies are fielding over twice as many complaints today as they did in the 1970s. Buyers, whether consumers or corporations, are demanding more of sellers and too often aren't getting it.

HANS NELEMAN

New bottoms for old *is a service L.L. Bean offers at cost to owners of its rugged Maine hunting shoes. Repair charge: $24.*

Yet the rewards of giving superlative service have never been clearer. In a gargantuan historical study, the Strategic Planning Institute of Cambridge, Massachusetts, has analyzed the performance of some 2,600 businesses over the past 15 years. Awkwardly named the Profit Impact of Market Strategy, or PIMS, this research shows that financial performance is tied directly to the perceived quality of a company's goods and services. By almost any measure—market share, return on investment, asset turnover—businesses that offer higher quality come out on top. Among the most powerful tools for shaping perceptions of overall quality, the PIMS study finds, is customer service.

Unfortunately, rendering superior service is often a frustrating task. Service experts are fond of pointing out that unlike products, services can't be made in a factory and stored in inventory; they are consumed at the moment of production, and whoever delivers the service, from telephone operators to washing machine repairmen, will do more than any management system can to determine quality. In short, customer service seems depressingly uncontrollable, especially in decentralized, "high contact" industries like the hotel business, where dozens of employees deal with customers. Even companies that shine at service can't offer simple formulas. "A lot of people have fancy things to say about customer service, including me," says Leon Gorman, president of L.L. Bean, the Freeport, Maine, mail-order house that leads its industry in quality of service. "But it's just a day-in, day-out, ongoing, never-ending, unremitting, persevering, compassionate type of activity."

Nonetheless, the masters of cus-

R. IAN LLOYD

"Singapore girls," *future flight attendants for Singapore Airlines, take a beauty class that includes lessons in applying makeup.*

tomer service—many of them listed in the table overleaf—didn't attain that status by accident, and a close look at them reveals strong similarities. They make outlandish efforts to hire only the right people, to train and motivate them, and to give them the authority necessary to serve customers well. They invest earlier and much more heavily than their competitors in technology to support customer service. They keep an especially sharp eye on the competition. And they constantly ask customers to rate the quality of service they have received.

Few organizations combine the elements as well as American Express's charge card operation. The basic card service is similar to that offered by any number of others. Yet American Express customers, both cardholders and businesses that accept the card, are willing to pay a hefty premium over the rates levied by, say, the banks that issue Visa cards. The reason is clear, says Spencer Nilson, who writes a credit card industry newsletter and often lambastes American Express: "There's no getting around the fact that American Express's service is far and away the best in the industry."

REPORTER ASSOCIATES *Edward C. Baig and Cynthia Hutton*

THAT IS THE RESULT of what may be the world's most elaborate system for tracking service quality. Despite a strong tradition of excellent service, American Express slipped in the early 1970s. Complaints surged as the card operation expanded too quickly overseas, with too little investment. So James D. Robinson III, chairman of American Express, asked the 12 departments responsible for card operations to develop standards for their own performance and to measure their achievement.

Ray Larkin, then a senior vice president charged with putting the measurement system into practice, soon discovered the system was no good. "Each department was doing great according to its own standards," he says, "but service wasn't improving." American Express called in McKinsey & Co. Instead of controlling quality department by department, the consultants suggested measuring the impact of all the departments' actions on customers. Today that system, called the service tracking report, measures the card operation's success in processing new applications for cards within 15 days, replacing lost or stolen cards in one day, sending out bills that are completely accurate, and performing over 100 other tasks. Every month Robinson and other executives scrutinize how well operations in all parts of the world have lived up to the standards, and every year the company publishes an annual summary for employees. Osvald Bjelland, a partner at the Service Management Group, an international consulting firm, calls the service tracking report "the best feedback on service quality I have ever come across."

American Express uses an awesome collection of other tools to produce top-notch service, including over 100 programs for recognizing and rewarding people who take unusual care of customers. A six-person team from headquarters makes the rounds of operating departments to check quality, and this year American Express will start following up on over 20,000 transactions with customers to see how they rate the treatment they've received. If the company's reputation starts to falter, Robinson aims to be the first to know.

Incompetent people can't render good service, so the best companies tend to recruit meticulously. Singapore Airlines and Delta Air Lines are good examples. Both have outstanding reputations for service; Delta's seems to have declined a bit but is still strong even after a horrendous string of mishaps last summer that included a near collision in the air and a near landing in the ocean. Singapore hires less than 2% of the thousands of women who want to become "Singapore girls"—yes, that's what the airline, based in a male-dominated land, calls its female flight attendants. Delta takes on even fewer, accepting merely 40 to 48 of the more than 20,000 applicants for flight attendant jobs who write in each month.

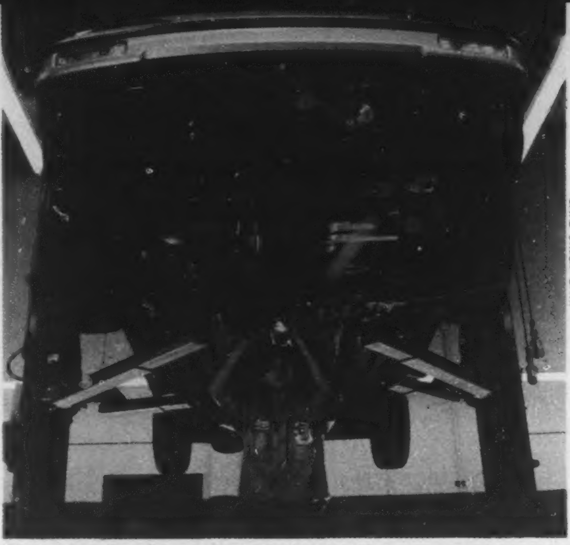
Both companies insist on months of rigorous training. Singapore's future stewardesses, many of them from humble backgrounds, learn how to use makeup and serve luxurious meals that feature items with which they are unfamiliar, like fish forks and caviar. They are cautioned not to drink alcohol or eat onions for ten hours before coming to work. They cannot even start their jobs until they have done time at behind-the-scenes tasks, like cleaning airplane cabins and accompanying the airline's salesmen on visits to travel agents. "All this is geared toward developing a well-rounded Singapore girl, one who knows all about the airline," says Michael Tan, a Singapore director. Delta does much the same, insisting that aspiring stewards and stewardesses move up through the back-office ranks before they get their wings.

FEW TRAINING PROGRAMS are as intense as the one Merck uses to turn new hires into the kind of salespeople who will uphold the drug company's No. 1 rating for service to pharmacists and doctors. Aspirants first study basic medical subjects for ten weeks—anatomy, physiology, disease—and must score 90% or better on a weekly test to stay in the program. In phase two they spend three weeks learning how to discuss and present Merck's products, then go on trial for six months, making presentations in the field along with their district managers. Phase three is another three weeks at headquarters, brushing up presentation skills. Even after more than 11 months of training, salesmen must regularly attend "primary didactics," medical classes conducted at Harvard, Johns Hopkins, and other universities. "Training is our obsession," says Jerry Keller, a vice president at Merck Sharp

WHO SERVES CUSTOMERS BEST, INDUSTRY BY INDUSTRY

	AIRLINES (DOMESTIC)	AIRLINES (INT'L)	APPAREL MAKERS	AUTOMOBILE DEALERS	COMMERCIAL BANKS	COMPUTER MAKERS	CREDIT CARD ISSUERS
COMPANY Headquarters	**AMERICAN** Fort Worth	**SINGAPORE** Singapore	**LIZ CLAIBORNE** New York City	**ACURA** Gardena, Calif.	**J.P. MORGAN** New York City	**AMDAHL** Sunnyvale, Calif.	**AMERICAN EXPRESS** New York City
SALES in millions	**$5,857**	**$1,560**	**$813**	**N.A.**	**$76,039** (assets)	**$966**	**$5,951**
FIVE-YEAR GROWTH RATE	8%	7%	47%	N.A.	7%	17%	22%
INDUSTRY'S FIVE-YEAR GROWTH RATE	7%	6%	8%	11%	8%	23%	12%
HOW THE LEADER EXCELS	Some 30,000 frequent fliers polled by the International Foundation of Airline Passengers Association say American is tops. Former champ Delta has fallen but still draws fewest complaints per passenger as tracked by DOT.	Singapore repeatedly ranks high, rated best (with Air New Zealand) by readers of *Travel-Holiday*, second by IFAPA members. Crossing the Atlantic, take IFAPA's No. 1 choice, Swissair.	A poll of 1,000 rag trade executives by *Sales and Marketing Management* said Claiborne's salesmen are best at keeping customers. One reason: They sell retailers only what stores can sell, so markdowns are infrequent.	This first-place ranking by J.D. Power, an auto-industry researcher, is no surprise: American Honda chose most dealers for its Acura line from the top 25% of its own dealers, who as a whole place second in service, just ahead of Mercedes-Benz.	In a confidential survey last summer, financial executives at over 1,200 of the biggest U.S. companies rated Morgan highest for its prompt, efficient follow-up and innovative dealmaking. Citicorp and Chase completed the top three.	Customers surveyed by Datapro, a market researcher, rate Amdahl No. 1 in service among mainframe makers. National Advanced Systems, an arm of National Semiconductor, also looked strong.	Amex offers "positively the most prompt and courteous customer service in the world," says the *Nilson Report*, a credit card newsletter. Sales are for American Express Travel Related Services.

SOURCES OF INDUSTRY GROWTH RATES: INTERNATIONAL DATA CORP. (COMPUTER MAKERS); *NILSON REPORT* (CREDIT CARD ISSUERS); SECURITIES INDUSTRY ASSOCIATION (DISCOUNT BROKERS); PHARMACEUTICAL MANUFACTURERS



DAVID STRICK—ONYX

Checking for flaws, *a dealer's technician grooms this brand-new Acura Legend coupe for delivery to a California customer.*

& Dohme, Merck's U.S. drug division. "People who come to us from other companies can't believe we have this kind of program."

Motivation, Keller notes, is just as important as training. "Salesmen motivate themselves because we show that we care about and respect them. A lot of places treat their salesmen like children." At Merck no salesman will be chastised for taking off at 4 P.M. to see a ball game with his family; in return, salesmen give their home numbers to physicians and stand ready 24 hours a day to answer questions or fill emergency orders. "We let them decide how to spend their time," says Keller, "and they pay us back in abundance. I don't think the money motivates them at all."

Keller's loose-reined approach is typical among companies that serve their customers well. Managers in lesser companies, driven by the desire to make service and sales people more productive, usually turn up the pressure, clocking how long it takes a telephone operator to handle a customer's complaint, insisting on elaborate reports from field salesmen. Striving to control the uncontrollable, they mechanize customer service as much as possible. That's exactly the wrong way to do it, says Richard Whiteley, a principal at Forum Corp., which specializes in sales and service training. He explains: "Successful service organizations empower individuals to offer the best possible service they can, within reasonable limits."

At Marriott and other companies known for good service, the people who render it are called associates and colleagues rather than customer service reps. They are remarkably free to call on every part of the company in helping customers, and they earn lush bonuses for extraordinary work. American Express thrives on heroic stories of how its people rescue customers from civil war and natural disasters, even when that means convulsing the company and spending thousands of dollars. Cash awards of up to $1,000 go to certified Great Performers such as Barbara Weber, 37, who last year cut through miles of State Department and Treasury Department red tape to refund $980 of stolen traveler's checks to a customer stranded in Cuba.

Training and motivating is especially tough in industries that pay the minimum wage, like supermarkets and hotels. They generally can't afford to be picky about hiring and so end up with the rawest of recruits, nearly all

DISCOUNT BROKERS	DRUG MAKERS	FEDERAL AGENCIES	FROZEN FOOD PRODUCERS	HOTEL CHAINS	MAIL ORDER MERCHANTS	NUTS & BOLTS DISTRIBUTORS	SUPERMARKET CHAINS
FIDELITY Boston	**MERCK** Rahway, N.J.	**FCC, SEC, U.S. POSTAL SVCE.** Washington	**CAMPBELL SOUP** Camden, N.J.	**EMBASSY SUITES** Irving, Texas	**L.L. BEAN** Freeport, Maine	**SERVICE SUPPLY** Indianapolis	**WEGMANS** Rochester, N.Y.
$100 (est.)	**$4,128**	**$3,100**	**$1,250**	**$349**	**$369**	**$55**	**$850**
42%	7%	10%	14%	N.A.	16%	(1%)	16%
25%	14%	N.A.	4%	7%	9%	N.A.	5%
Surveys by Payment Systems Inc. of Tampa show consumers rank Fidelity Investor Centers highest.	According to *Sales and Marketing Management*, drug industry executives give Merck the nod for its salesmens' technical knowledge, training, and reputation among customers.	This may surprise many postal customers, but these three agencies are best at handling complaints from consumers, says Technical Assistance Research Programs Institute of Washington, D.C. Figures are for U.S. Postal Service.	Grocery buyers and distributors say Campbell gives the best service in frozen foods, according to Meyers Research Center of New York. Kellogg is tops in dry groceries, Kraft in refrigerated foods.	After 232,000 visits to all major chains, readers of *Consumer Reports* rated Embassy tops in the mid- and high-price categories. Stouffer, Marriott, and Westin also ranked high for their helpful, efficient staffs.	From underwear to luggage, say 165,000 readers of *Consumer Reports,* Bean is best; Lands' End ties for first in many categories. Other winners: J.C. Penney (kitchenware), Brookstone (gadgets), Omaha Steaks (food).	Eleven relatives of founder Edgar Seitz run what they call the "house of a million screws." Readers of *Industrial Distribution* rated it best. Sales have shrunk because the company has sold operations.	Wegmans ranks just ahead of Publix (Florida) and Fred Meyer (Northwest), says the Consumer Network, a national panel of shoppers. Other outstanding chains like J. Bildner & Sons (Boston) and Byerly's (Minneapolis) weren't rated.

ASSOCIATION (DRUG MAKERS); LAVENTHOL & HORWATH (HOTEL CHAINS); MAXWELL SROG PUBLISHERS (MAIL ORDER MERCHANTS): *PROGRESSIVE GROCER* (SUPERMARKET CHAINS).

eager to leave for better jobs. The dilemma doesn't bother Danny Wegman, president of Wegmans Food Markets, a 38-store chain based in Rochester, New York. An effective solution, he finds, is liberal college scholarships. After working at Wegmans for a year, any employee who performs well, can write a convincing application, and seems likely to do well in college or graduate school can get a scholarship for half his tuition. So far almost 1,000 of Wegmans' 11,000 full- and part-time employees have made the grade, staying in school—and at Wegmans. Those motivated workers give the best service in the industry, according to the Consumer Network of Philadelphia, a nationwide group of 3,500 shoppers. One of them says: "I've lived in Japan, and service at Wegmans is just like service in Japan. It's what a supermarket ought to be."

Now Danny Wegman has extended the work-study program to high school students who seem likely to drop out. Last May he invited borderline cases from the Rochester public schools to join Wegmans Work-Scholarship Connection, which offers $5,000 college scholarships to students who keep working at Wegmans and attending high school. "Five months later," Wegman says, "the 30 we hired are all still here. We've never had that kind of retention rate."

The prize for managing low-paid service workers may belong to Embassy Suites Hotels, a subsidiary of Holiday Corp. that specializes in hotels made up solely of suites. "Historically hotel managers have believed that minimum-wage workers aren't smart or ambitious," says Hervey Feldman, president of Embassy Suites. "That's just not true. With training and experience, they all have the curiosity and intelligence to go beyond making beds." To ensure that he hires and promotes general managers who share his views, Feldman looks most closely at candidates' interpersonal skills, especially their inclination to treat all people as if they are competent. To help motivate workers, managers post in the employee lounge a daily report on the hotel's occupancy rate, average room rate, and estimated profits, along with comments from at least five customers interviewed at random the day before. If the hotel is achieving its goals, even the lowest-paid worker can receive a monthly bonus of over $100.

GEORGE STEINMETZ

Flipped-to-order *breakfasts are free at Embassy Suites Hotels, and so is a daily cocktail party.*

"Minimum-wage workers are going to get out of that pit as fast as they possibly can," Feldman says. To keep them moving up in the fast-growing chain, and not out, he has cooked up a pay system based on skills. A housekeeper who wants to run, say, the front desk can take company-sponsored classes in that skill. Passing grades don't mean an immediate promotion, but they're worth an extra 25 cents an hour or so in housekeeping wages, as well as the chance to fill in at the front desk when demand peaks. "I don't know of any other hotel that builds in switch-hitters like we do," Feldman boasts. About a quarter of Embassy's 4,500 hourly workers are usually in the training program, which has produced two dozen managers and assistant managers so far.

Customers all want effective service that solves problems quickly, but surveys show that the emotional tone of the person serving them makes just as strong an impression. So companies desperate to improve service often try to get by with a quick tuneup of front-line employees' attitudes. Those tactics usually don't work. In a survey of 212 companies, the Zenger-Miller consulting firm of Cupertino, California, found that programs to improve service frequently boil down to teaching employees the soft sell, pumping them up with motivational seminars, and training them in telephone and courtesy skills—"smile-and-dial," as they say in the training game. "Front-line workers don't create service quality," says Roland Dumas, a research manager at the firm. "They just deliver it. Expecting training alone to improve service quality is like making a loading-dock worker responsible for the quality of products."

FOR A COMPANY to shine in customer service, every manager and employee has to get the service religion. One practical way to shape their behavior: Get back-office departments to treat front-line operations as customers. When product designers have to sell their ideas to salesmen, for example, the whole organization tends to become more sensitive and responsive to the ultimate, outside customer.

That's what has happened at Campbell Soup, whose frozen-food operation gets top marks for service to retailers. Carl Stinnett, a vice president, left Nestlé for Campbell two years ago. "I'm impressed with the breadth of concern for customer service here," he says. "You obviously hear it in sales, but you also hear it in marketing, in the plants, and even in finance." To keep plant managers from dismissing customer requests as annoying interruptions, Campbell assigns a salesman full-time to each of its ten plants that make direct shipments. His job is to ensure that grocers get the products they want when they want them, even if that means disrupting production to load, ship, and bill an emergency order in one day. "Most companies have a transportation or warehousing type to handle this function," observes Michael Newland, another Campbell vice president. "But we find that keeping a salesman at the plant makes everybody there respond better to customers."

continued

The company doesn't consider even that safeguard sufficient. Fearing that its in-plant salesmen might be overlooking something, Campbell is sending experienced manufacturing people into the field to act as ombudsmen for customers. These roving inspectors visit customers to discover new ways of improving service, such as changing the way cases of Swanson frozen dinners are loaded in order to cut down on damage.

Many companies will never provide outstanding service because they are afraid to spend the bundle it costs. Maintaining lavish inventories or excess production capacity is virtually mandatory. Example: Service Supply Corp. of Indianapolis, which styles itself the "House of a Million Screws." It stocks over 74,000 fasteners, from nearly invisible screws for eyeglasses to yard-long structural bolts for bridges to the patented Mac Lean-Fogg Whiz-Lock, a self-locking screw that is nearly impossible to remove. Mel Seitz Jr., Service Supply's president, claims he can immediately ship 95 of any 100 items a customer is likely to order, compared with an average of 55 items for other nuts-and-bolts distributors. Carrying all that inventory makes Service Supply slightly less profitable than its competitors, Seitz says, but faster growing: "The return on our inventory investment is seen in our reputation, which increases business and will eventually increase profit margins."

continued

SERVICE STARTS WITH THE MAN AT THE TOP

MARK SELIGER

Hervey Feldman of Embassy Suites

■ The most important factor in outstanding customer service sits in the corner office. When the CEO eats, sleeps, and breathes service, the rest of the troops catch the spirit pretty quick.

Leon Gorman, president of L.L. Bean, measures his company's order fulfillment in half-days. Mel Seitz Jr., president of Service Supply Corp., returned home one night to find a message from a customer who needed some two-inch nuts, but when Seitz called back it was too late; the customer had called Seitz's father, Service Supply's retired chairman, and he had taken care of the matter. David Cariseo, president of Fidelity Investor Centers, is impatient with anything less than perfection: "My attitude is, if you could put Frank Borman on the moon and bring him back alive, we ought to be able to solve any customer's problems."

Two other chiefs have shown how widely differing styles can pay off equally well. American Express's James D. Robinson III is a hands-off manager. Hervey Feldman of Embassy Suites Hotels is hands-on. Both are service champs.

Robinson, 52, is a master of using service to give a marketing edge to his products, whether they are credit cards or a bank. "In a commodity-like business, service is the only way to create product differentiation," he explains. Robinson gives senior executives an unusual degree of autonomy, interfering only rarely and doing so with an almost imperceptible touch. But he gets his message across by repeating it—incessantly and generally without fireworks. "The constancy of the message is what's important," says Robinson. After years of being hammered in, it has become part of the company culture.

Feldman, 50, didn't create the all-suite hotel, but he honed what once was a faddish concept into the hottest lodging design of the decade. Embassy Suites earns a gross profit margin of 50%, 20 points higher than the margins achieved by such competitors as Hilton, Sheraton, and Westin. Feldman is mindful of the irritation so many business travelers feel from their contacts with the travel industry, and frequently travels to check out his own hotels. He also visits those of competitors and is occasionally disappointed: "I'm a very bad customer, always looking at the jobs people do and the way they do them."

For an admittedly tough customer, Feldman's requirements seem reasonable enough. Just give him a hassle-free and friendly experience. Among the hotel chains he scouts, he gives highest marks to the Four Seasons chain (the Ritz Carlton in Chicago, the Pierre in New York), at least in the luxury category.

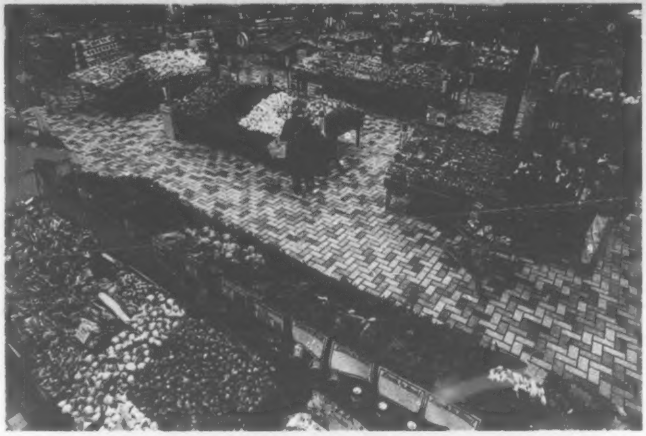
Off the job, both men seem able to take their minds away from their business obsession. Wall Streeters speculate that Robinson is gearing up for a Cabinet post, and he has said that by 1990 or so he may be ready to let someone else run American Express. He says he has "absolutely no" political ambitions. As for Feldman's private life, having him as a husband or father sounds a bit unsettling ("That's not a properly made bed, young man"; "Honey, how *could* you serve from the right?"). But Feldman insists that he does not make his wife, Ellen, and 3-year-old son get out of their rooms by 11 A.M. Says he: "At home I'm a little more forgiving."

—Bill Saporito and Monci Jo Williams

James D. Robinson III of American Express

GEORGE LANGE

JAN STALLER (2)



"Wonder store" *is one shopper's name for Wegmans. Thanks to the palatial size of its new supermarkets—around 90,000 square feet—the chain can offer mind-boggling variety, uncrowded browsing, and swift checkouts.*

Scrimping on capacity is a terrific way to infuriate customers, as investors who tried to call their brokers on Black Monday can confirm. Fidelity Investor Centers claims to get an edge on other discount brokers by employing more telephone operators per customer. During Black Monday, Fidelity more than tripled its staff of operators from 250 to about 800. Some customers couldn't get through for an hour, and 3% of Fidelity's 580,000 callers gave up, but the company answered its phones within 48 seconds on average. Some lesser firms reportedly dealt with the massacre by leaving their phones off the hook.

New technology is an important part of the high cost of great service. Wegmans started installing optical scanners to speed up supermarket checkouts back in 1974, years before scanners swept the industry; it began installing automated teller machines tied into local banks back in 1983. Campbell was among the first food producers to equip salesmen with powerful hand-held computers. This year American Express's Travel Related Services Co., which deals in charge cards and traveler's checks, plans to spend some $300 million on technology, including exotic artificial intelligence programs that most companies think are too advanced to be useful.

A powerful motive for this technomania is efficiency. Providing customer service, after all, means hiring lots of people, and technology is the best hope for improving their productivity. But companies that understand service don't use technology mainly to get more work out of their employees, as a factory might. They say the biggest benefits come from improving the quality of service and offering new services.

The Authorizer's Assistant, for instance, one of American Express's artificial intelligence programs, helps credit authorizers decide whether to approve a cardholder's purchase (FORTUNE, October 12). American Express doesn't measure the benefits in approvals per hour. Instead it measures the payoff from making better judgments. The company estimates it will save seven times more than it would from productivity improvements alone because fewer bad credit risks will get by and fewer good ones will be turned down.

WITH ALL THIS spending, how do the leaders in service achieve better financial results than their competitors, as the PIMS study says they do? Answer: Customers will pay more for superior service. The key is finding a service strategy—knowing exactly which group of customers you want to serve and figuring out what kind of service will loosen their purse strings. "Because the investment is so substantial, most companies can't invest in customer service across the board," observes Booz Allen & Hamilton consultant Randy Myer. "More and more we're helping them work out what their customer service strategy ought to be."

The strategy must be tightly focused. Jan Carlzon, Sweden's answer to Lee Iacocca, swung Scandinavian Airlines System from steady losses to steady profits in only two years by concentrating narrowly on business travelers. He laid on frequent early morning and early evening flights, installed movable partitions in aircraft cabins so SAS could expand business-class sections at will, and coached his staff to handle business travelers like royalty. None of those moves appealed to tourists looking for bargains, but the customers Carlzon really wanted often made SAS their first choice in his part of the world. People Express, by contrast, foundered when it tried to capture two widely differing market segments with essentially the same service. The airline's famous No Frills strategy was just the ticket for budget travelers, and operating revenues soared from $139 million in 1982 to $978 million in

1985. But when People Express later tried to fill its ever-growing fleet with business travelers, they said no to No Frills. Losing focus drove People into the clutches of Texas Air late last year.

The best way to develop a service strategy is to listen to customers. They're quite willing to say what kind of service they want and to rate the service they're getting. But most companies have cotton in their ears. They rely heavily on complaints that come in over toll-free telephone lines and on comment cards, those ubiquitous service questionnaires that hotels and airlines hand out. "The problem with such methods is that they measure only the extremes," says Christopher Hart, an assistant professor at Harvard Business School who studies service industries. "You hear from Mr. Grumpy and Mr. Smiley, but not from Mr. Average."

Outstanding service companies use toll-free lines and comment cards only to supplement their incessant customer surveys. Embassy Suites recently augmented the roughly 350 free-form customer interviews it conducts every day with a survey of 6,000 guests. "It's probably the most extensive survey ever in the hotel industry," claims Feldman, the chain's president. (The biggest complaint: 18% said the chain should improve its free breakfasts.) Every week Fidelity Investor Centers asks 3,000 customers who have recently executed trades to rate the service they received and suggest improvements. The reason, according to David Cariseo, the brokerage's president: "We're a luxury item. People could spend their whole lives without investing with us. So we have to provide luxury service."

Cadillac gathers focus groups of owners and monitors very repair order and complaint registered by its 25 "listening post" dealers. The company has discovered that customers are most upset with the dealers' inability to repair cars right the first time. "That's not easy to fix," says John Grettenberger, Cadillac's general manager, "because luxury cars have so much complex equipment." Grettenberger set up a system that links every dealer with a corps of ten engineers who use computerized caches of engineering drawings and service bulletins to walk dealers through repairs that stump them. While over 40% of repairs by all automobile dealers have to be redone, says Cadillac, its own dealers have lowered their proportion to 35% and are still pushing. This year Cadillac jumped from 14th to seventh place in the rankings of service compiled by J.D. Power & Associates, an automobile industry research company.

IMPROVING SERVICE is about as difficult a job as a company can undertake, because it means reforming attitudes and practices in nearly every department. Strong cultures and close ties to their customers seem to make the job easier for smaller, family-owned firms, but bigger, more bureaucratic companies can have a terrible time. "They haven't worked out the methods for ensuring service quality," says Roland Dumas of Zenger-Miller. "In most service organizations, I can be applauded as a genius simply by walking in and applying the statistical process controls that manufacturers have used for years."

Providing superior service need not be a touchy-feely mystery. It requires hardheaded analysis, talented management of people, intense concentration and commitment, and serious spending, but not black magic. American managers have learned to improve the quality of their products enormously in recent years. The champions of customer pampering show that organizations can improve service with similar common-sense management tools. ■

COMPANIES THAT SERVE YOU WORST

■ Everyone has a special horror story about customer service. The most infuriating these days probably concern air travel. Runaway traffic growth and many carriers' difficulty in adapting to mergers are major reasons passenger complaints have nearly quadrupled since last year. Now bad service has become a federal case: Both houses of Congress have passed bills that require airlines to post their on-time and lost-baggage records for all to see.

The worst offender is Texas Air, the union-busting holding company that absorbed Continental, Eastern, and People Express. Continental led the industry in complaints per 100,000 passengers for the first nine months of 1987. But it isn't always the worst. In September only two-thirds of USAir's flights arrived on time, the sorriest showing by any major domestic airline, and Pan Am got the booby prize for the highest percentage of passengers bumped and highest percentage of flights that usually arrive more than 15 minutes late.

Bigness, conglomeration, and lack of competition often lead to poor service. Beatrice, a giant in packaged foods, went private last year and is in the throes of dissolution. It gets the lowest ratings for service to food retailers and distributors. After visiting relatively high-priced national hotel chains, readers of *Consumer Reports* criticized Hilton and Sheraton, ITT's giant hotel subsidiary. Consumer satisfaction with cable TV operators, which are monopolies in most areas, has been declining ever since the Yankelovich Monitor started measuring it in 1984.

Smallness and competition, however, don't guarantee caring service. Independent auto repair shops and home repair and maintenance companies tend to be modest neighborhood enterprises, but polls say they offer abysmal service. For service so awful that it verges on fraud, try the sleazier mail-order merchants, especially some of those that offer exotic clothing, imitations of famous perfumes, and cheap plants, bulbs, and seeds for the garden.

To the detriment of some companies, reputation can belie reality. Customers tend to recall bad experiences more vividly than good ones. Several studies have indicated that a customer will tell only a handful of friends about the great service he has received, but will singe the ears of as many as 20 people with tales of shabby treatment. They in turn tell their friends, and word of mouth soon blackens the reputation of the offending company, even if its general level of service is top-notch. No wonder Jan Carlzon of Scandinavian Airlines System says that every year his employees' contacts with customers create "50 million moments of truth."

If the difficulties of giving good service seem daunting, consider the far higher cost of polishing a tarnished reputation. Continental Airlines is spending millions this year to advertise its rededication to service, and some $60 million on training employees to be more courteous and efficient. Even so, Continental cannot expect to recoup its investment quickly. Today's horror stories will take years to die.

■ HOW JAPAN PICKS AMERICA'S BRAINS • GOODBYE, CORPOR

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"This is a real crisis. Anytime your operating income fails to cover expenses, you've got a problem."
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With revenues that will pass $800 million this year, Nucor maintains a corporate staff of only 17.
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"The Japanese buy the patent, perfect it, synthesize it, sell it, and reinvest the money in another patent."
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"Everybody can be a devil. Everybody can be an angel. Everybody. Even me."
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"Emotion that a voter has about a candidate is the only thing that might change his mind in the voting booth."
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Asked exactly what the Borden difference is, one veteran dairyman replied: "About a buck a gallon."
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THE EDITOR'S DESK

IT HAS RICHES and glory beyond imagination and yet faces a growing cash crisis. It recently convened a council of elder statesmen to figure a way out of its deficit. Are we talking about the U.S. government? Not quite. The Vatican, that great global institution with a charismatic leader and vast influence, faces a classic management problem: a cash squeeze. You don't have to be Catholic to be interested.

This is not a story that you will read about in *Osservatore Romano* or hear about on the Vatican Radio. The secretive Vatican bureaucracy puts out just one cryptic financial press release a year. But who better to get the story than FORTUNE's Paris bureau chief Shawn Tully? His family tree is peopled with two sisters of the Sacred Heart, one Jesuit, and one cardinal. He has degrees from Princeton, the University of Chicago, and the Catholic University of Louvain in Belgium. He has deciphered tangled finances as varied as those of commodities baron Marc Rich and Canada's Dome Petroleum. Yet, says Tully, "the story of the Vatican's finances was the toughest I've ever covered."

Tully camped in Rome for nearly a month, chasing more cardinals than a St. Louis sportswriter. At first, Giuseppe Cardinal Caprio, director of the Vatican's budget office, was stiff and silent. But apparently he was impressed by Tully's persistence. Three weeks later the cardinal received Tully warmly, and he and his staff spent three hours clarifying details. More missing numbers turned up when the 15 cardinals who supervise the finances convened for their semiannual meeting. They opened up.

P. PERRIN—SYGMA

Tully penetrated the Vatican while . . .

ANDY FREEBERG

. . . Dorion opened up the U.S. Church.

Meanwhile, Marta F. Dorion, who has just been named FORTUNE's deputy chief of reporters, was gathering facts from church officials in the U.S. She wrote the accompanying box on the Springfield–Cape Girardeau diocese in Missouri, which although small and not wealthy makes the largest per capita contribution to the Vatican's annual collection, Peter's Pence.

We hope our cover package will clear up some myths about the Church's wealth. But Cardinal Caprio may have had it right when he told Tully that what happens to the Vatican's deficit "is in the hands of Providence."

Marshall Loeb
MANAGING EDITOR

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THE ECONOMY

THE SMOKESTACKS STEAM AGAIN

U.S. industry is operating closer to capacity than it has since the late 1970s. That means shortages for some customers, but it is an overdue payoff for the long, lean years. ■ *by H. John Steinbreder*

REMEMBER deindustrialization? Not much more than a year ago it was a favorite topic for doomsayers who predicted the demise of the U.S. as a major manufacturing power. Look now at the healthy clouds of steam billowing from America's factories. What you're seeing is a Rust Belt revival.

Capacity utilization rates in the once sickly steel industry have risen nearly 20 percentage points in the past year and now are about 83%. Reynolds aluminum plants are operating at 100% of capacity, and the company is allocating supplies to customers for the first time in years. Mead Corp., which is breaking ground for a $500 million paperboard mill in Alabama, is among several paper companies trying to meet rising demand through expansion.

The results are clear on the income statements. The 26 largest U.S. steelmakers earned some $400 million during the first six months of the year, vs. cumulative losses of $12 billion since 1982. Earnings at Phelps Dodge, the copper producer, are expected to rise to $170 million this year, up from $64 million in 1986. Profits for chemical manufacturers bubbled up 40% last year and could climb another 20% in 1987. Paper industry revenues will probably reach a record $86 billion, 15% above last year's lush total. Profits for the first half broke records too, soaring 46% higher than 1986 figures for the same period. Many companies are using the cash to pare debt or to revive anemic capital spending. Says Charles I. Clough Jr., chief investment strategist for Merrill Lynch: "We are in the midst of an industrial renaissance."

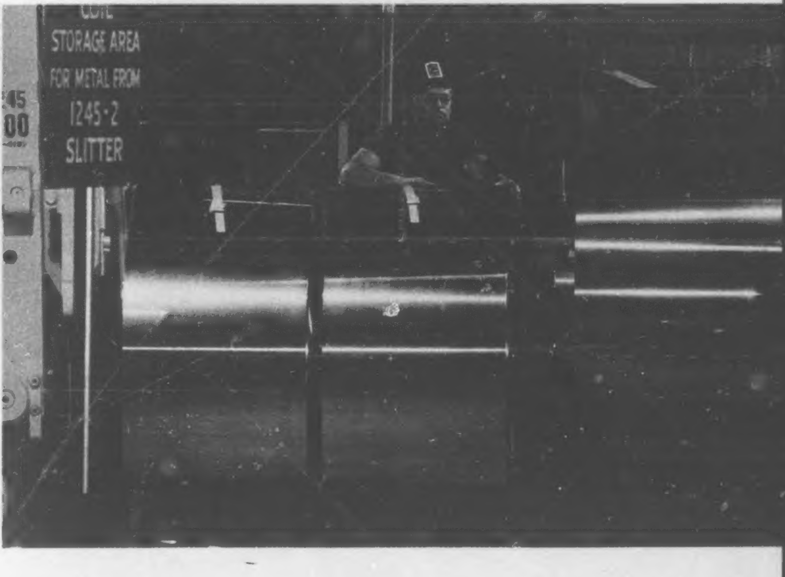
Such news from smokestack America is heartening, especially after the market crash that dampened economic confidence. But the new optimism is tempered by fears of inflation. The demand that has brought greater capacity utilization and stronger profits is also pulling prices up.

So far the increases seem unlikely to generate serious inflation, but they are worrisome. Says Steven C. Mason, president of Mead Corp.: "As a businessman, I see prices just getting back to the levels of five years ago, which will allow us to modernize and expand. As a private individual, though, any time you see increases like these you have to consider them inflationary."

American industry has spent years getting ready for this party. The recession of the early 1980s forced companies to begin long-overdue restructuring and cost cutting. New factory construction all but stopped. At the same time, industry began mothballing antiquated plants and shutting down huge chunks of U.S. manufacturing and mining capacity. The copper industry, for example, has shrunk capacity by some 15% and cut its labor force by two-thirds, laying off nearly 20,000 workers. Copper producers invested heavily in new technology. Prices and profits

FROM PAPER TO ALUMINUM . . . . . . THEY'RE ROLLING OUT THE GOODS

JAN STALLER



IRA WEXLER

Business is booming at Mead Corp.'s coated-paper mill in Chillicothe, Ohio, and at the Reynolds plant in Sheffield, Alabama, that makes aluminum sheet for beverage cans. Both are operating near full capacity. Also thriving are producers of steel, copper, chemicals, textiles, and tires.

rose dramatically, and so did productivity and competitiveness.

The party has steadily livened since the dollar began falling from its February 1985 peak. That has reduced prices of U.S. goods, reopened export markets, and rekindled demand at home for American products. The latest drop can only speed up the music. Manufacturers are buying more of their raw materials and components from U.S. suppliers. And some companies are beginning to repatriate offshore operations. Cross & Trecker, a leading machine tool maker, is scaling back a Japanese joint venture and returning some production to King of Prussia, Pennsylvania. Tandy recently brought some of its computer-making capacity from South Korea back to the States. Says Tandy's chief executive, John Roach: "Our production has moved many times from the U.S. to the Orient, but this is the first time we are moving from the Orient to the U.S."

Rising demand has helped lift capacity utilization for manufacturing to 81.7% in October, the highest level since March 1980. Companies in many industries—aluminum, paper, textiles, chemicals—are running at well above 90% of capacity.

Prices, as a result, have been climbing in several industries. Aluminum is up 55%, and copper nearly 90%. Some steel prices are up as much as 12%. Bethlehem Steel audaciously raised prices the day after the stock market crash in mid-October. Paper pulp has risen from $400 a ton to a record $580 a ton over the past two years. Linerboard prices have soared 15% this year, and newsprint around 10%.

SLOW DELIVERIES and bottlenecks are also pinching some customers. Says Raymond W. LeBoeuf, vice president for purchasing and distribution at PPG Industries: "As a buyer we are seeing shortages, and they are becoming more and more widespread. As a seller, we can't take additional customers for certain products." A major paper products customer agrees. "Some suppliers have already asked to be relieved of their contractual obligations," he says, "and in some cases we have deferred deliveries for a quarter or two at their request." Supply has been so tight in certain industries, reports Jerry Baker, executive vice president at the National Association of Purchasing Management, that "some businesses have turned to overseas producers to fill their short-term needs."

In a traditional economic expansion, the price increases and bottlenecks would be a sure sign of overheating. Witness what happened in 1973, when capacity utilization figures rose to historic highs. Producer prices, not including food and energy, jumped 25% after that.

But it's not so cut and dried this time. Some manufacturing sectors remain in the doldrums. Auto and machine tool makers, for example, are still stuck with overcapacity and strong foreign competition. GNP growth should plod along at 1.8% next year as the economic engines that have powered the revival sputter a bit, and demand will slacken. That should ease pricing pressures and calm most fears about galloping inflation.

FACTORIES ARE HEATING UP

INDUSTRY	CAPACITY UTILIZATION RATES 1987 latest	 1967-86 avg.	 1967-86 high
ALUMINUM	89.2%	87.4%	105% Aug. 1967
CHEMICALS	83.8%	78.7%	88.6% Oct. 1973
PAPER	96.1%	88.2%	95.8% Dec. 1972
RUBBER	86.6%	84.7%	98.5% Dec. 1972
STEEL	82.6%	78.6%	105.8% Dec. 1973
TEXTILES	94.5%	84.7%	92.5% June 1968

SOURCE: FEDERAL RESERVE

As the Rust Belt revival moves into high gear, many U.S. industries are approaching or passing their old highs of capacity utilization.

The economy probably won't pick up steam again until late 1988. In the meantime, bottlenecks in industries with capacity crunches should at most inconvenience customers. Despite the lower dollar, foreign suppliers remain available. They will serve both as a safety valve and as insurance against runaway price spirals.

In several industries companies are adding capacity. Textile manufacturers have put in some $2 billion worth of new equipment this year. The paper industry is pursuing plans that will boost production several million tons by 1990. Others adding capacity include the tire, chemical, and glass industries.

Some analysts now worry that smokestack America may be about to spend and build itself into another slump. For example, Cooper Tire & Rubber will increase capacity by 20% next fall even though President Ivan Gorr admits that "I don't see a marked change in worldwide demand for tires." The expansion in textiles troubles Jay Meltzer, an analyst at Goldman Sachs. Says he: "I think demand is going to stabilize, or possibly diminish, because much of it has been fueled by out-and-out inventory rebuilding."

A number of industrialists agree, and they are approaching the current boom with caution. Says David Roderick, chief executive of USX: "Given our experience during the past 20 years, I am not willing to risk our shareholders' money by expanding capacity just because our business has recently improved." Adds Robert Irelan, a Kaiser Aluminum vice president: "One thing that is very certain is that what goes up can come down quickly." At Kaiser, says Irelan, "we are not looking so much at increasing capacity as we are at getting our costs down so we can run in a very weak pricing scenario."

For some industries caution does seem warranted. Joel Popkin, an economic consultant in Washington, D.C., points out that steel and textile producers are doing well in part because of import quotas. If the quotas fall, or the dollar rises, those industries could be in trouble again.

But for most, worries about overexpansion seem like downright pleasure compared to the concerns of the recent past. Many had cut back so much early in this decade that they have to build new plants in order to keep from falling behind. Says Harry Millis, a tire industry analyst with McDonald Securities in Cleveland: "If the U.S tire companies don't expand, there are some foreign competitors who would just love to grab a larger share of the market." Even if the economy falters, most of these companies have cut costs to the point where they are better equipped to survive a slump than at any time in recent memory.

The sudden revival of smokestack America has created a sense of optimism that hasn't been seen since the late 1960s, when Cleveland's Cuyahoga River was so laced with industrial pollutants that it caught on fire. As Merrill Lynch's Clough puts it, "The long-awaited modernization of U.S. industry is upon us." Bullish on basic industry, he is convinced that "the rebuilding of our industrial plant will be the primary engine of economic growth in the next cycle."

The challenge for companies suddenly awash with orders and profits is to keep practicing the lessons they learned during their long and wrenching climb back to competitiveness. In any industry, after all, excess capacity is not so much a problem as an opportunity for the company that is successfully increasing productivity and lowering costs. It's the other guy who inherits the problems. F

REPORTER ASSOCIATE *Wilton Woods*

MANAGING

GOODBYE, CORPORATE STAFF

All kinds of companies are saving money and increasing efficiency by clearing out the crowd at headquarters. Watch out, lawyers, futurists, and other deep thinkers.

■ *by Thomas Moore*

GENERAL FOODS administers its empire from a gleaming monument of corpocracy that rises like an Aztec temple over a pond in Rye Brook, New York. But today the imposing architecture of the building and the headquarters organization it housed have become relics. Acquired by Philip Morris two years ago, General Foods recently announced it would dismantle its corporate staff hierarchy and eliminate most of its 2,000 headquarters jobs. An operating president will move his executives into the vacated offices; he and two other presidents will hire about half the people dumped by headquarters.

A corporation can slim down in lots of ways. U.S. companies seem to have tried them all, from selling off businesses to closing redundant plants. But an increasingly popular route to greater efficiency is cutting the corporate staff. That is the often vast collection of planners, economists, marketers, central purchasing agents, real estate managers, human-resources specialists, futurologists, other analysts, and deep thinkers who sit at headquarters and often annoy the operating executives by offering to help them. Says Robert Tomasko, author of the new book *Downsizing* and a partner at management consultants Temple Barker & Sloane: "Corporate staff is becoming an endangered species."

Some companies hack away indiscriminately, weakening critical control functions or lopping off valuable services. Others trim insufficiently or simply smoosh people around from one organization chart to another. But a few have shown how to slough off staff neatly. In many cases the employees who remain inhabit a strange new world in which decisions are quick, accountability is clear, and everyone is working harder.

Life in the new minimalist corporation is tougher but simpler. The small corporate headquarters may be located a thousand miles or more from principal operating units, as the Charlotte, North Carolina, office of steelmaker Nucor is. The new head office decides how to allocate corporate capital among internal and external investments, watches the investments closely, and replaces managers who do not meet budgets. Freed to manage their businesses, general managers decide what services they need and whether they should get them from corporate headquarters, from their own staffs, or from outside suppliers.

Many chief executives never felt comfortable with the entourages they allowed to grow around them. In 1953, in the early days of America's postwar managerial revolution, John L. McCaffrey, then chief of International Harvester, told FORTUNE: "We

REPORTER ASSOCIATE *Kelly Tasker*

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RAND PH ROAD

WILL MCINTYRE

The whole staff *but two gathers at the modest headquarters of Nucor (1986 sales: $755 million).*

sit at our desks all day while around us whiz and gyrate a vast number of special activities, some of which we only dimly understand. And for each of these activities, there is a specialist . . . All of them, no doubt, are good to have. All seem to be necessary. All are useful on frequent occasions. But it has reached the point where the greatest task of the president is to understand enough of all these specialties so that when a problem comes up he can assign the right team of experts to work on it."

Today, with U.S. corporations under pressure from foreign competition, these doubts have swelled into a managerial counterrevolution. Partners at McKinsey & Co., the management consultants often brought in to do hatchet work by bloated corporations too timid to draw their own blood, argue that the large staffs of traditional multibusiness corporations no longer serve much purpose in the U.S., Britain, and other developed economies.

BIG CORPORATIONS historically created value by recruiting and training talent and providing capital to invest in operations, explains Stephen Coley, a McKinsey principal in Chicago. They still do in developing countries. But in efficient economies, with sophisticated headhunters, investment bankers, and consultants for just about anything, corporations can buy these services and no longer need full-time staffs to provide them. "Our view is that value is created only in the operating units," says Coley. "The role of the corporation in a developed economy is to act as a demanding and farseeing parent, but not one that tries to do everything for the businesses it is trying to nurture."

Few companies have shown how to do that as successfully as Anglo-American conglomerate Hanson Trust (1986 revenues: $6 billion). "What Hanson does is go out and find corporate anachronisms—top-heavy, widely diversified companies—and then bust them up and get rid of corporate staff," says Coley. In the past 14 years its U.S. arm, Hanson Industries North America, has taken over ten companies, including two big industrial conglomerates, U.S. Industries and SCM Corp. Between 1982 and October's stock market crash, Hanson shares more than quadrupled in value; they have since fallen by a quarter. Hanson's latest move: a just-consummated $2.2 billion deal to buy Kidde Inc., another conglomerate that makes everything from Jacuzzis to pots and pans.

LARGE COMPANIES WITH SMALL STAFFS

It pays to keep lean at the top: Most of these abstemiously staffed giants have performed admirably in recent years.

	1986 SALES (millions)	EMPLOYEES		SALES (millions) PER HEADQUARTERS EMPLOYEE
		TOTAL	HEAD-QUARTERS	
BURLINGTON NORTHERN	$6,941	43,000	**77**	**$90**
TRANSAMERICA	$7,120	15,200	**100**	**$71**
CSX	$6,345	52,000	**100**	**$63**
DANA	$3,695	36,000	**72**	**$51**
NUCOR	$755	3,700	**17**	**$44**
HANSON INDUSTRIES	$3,769	33,000	**89**	**$42**
HENLEY GROUP	$3,172	18,000	**75**	**$42**
HEINZ	$4,366	45,000	**175**	**$25**
BORG-WARNER	$3,623	82,000	**175**	**$21**
JAMES RIVER	$2,607	35,500	**175**	**$15**
BRUNSWICK	$1,717	18,700	**180**	**$10**

SOURCE: TEMPLE BARKER & SLOANE

Sir Gordon White, Hanson Industries' jet-setting chairman, holes up in an elegant Park Avenue office with a staff of 12, including secretaries and the company's one public relations officer. But the home of most of Hanson's top U.S. executives, which Sir Gordon rarely visits, is back-to-basics chic. The company leases part of the third and fourth floors of a modest four-story building in an exurban industrial park near the Amtrak train station in Iselin, New Jersey. Inside, Hanson's headquarters has the panache of an insurance company's back office. Almost all the furniture, right down to the framed prints and potted plants, are leftovers from USI and SCM.

As Hanson Industries has quadrupled in size in the past four years, its headquarters has grown only from 29 people to 89. That is a fraction of what many smaller U.S. companies employ. USI, for instance, had 172 and SCM 182 at headquarters. Hanson pools a dozen or so personal computers and does not own or lease a mainframe; it uses an outside payroll service. The company's total corporate expense, including salaries and office space, was $17 million last year—about one-quarter the combined corporate expenses of USI, SCM, and Hanson at the time of their mergers.

Hanson's organization chart is something a child can understand. Sir Gordon and President David Clarke are at the top. Reporting to Clarke are five corporate vice presidents in charge of law, finance, organization development, acquisitions, and operations. Six group vice presidents, each overseeing a batch of individual operating companies, report to the corporate VP for operations. The senior management group of 12 at Iselin is supported by 42 middle managers and 35 secretaries and clerks.

CLARKE, 46, an avid sailor who used to own a fishing business, professes to be astonished by the excess corporate baggage carried by most big companies, not to mention the grand life to which many top executives have become accustomed. That's a major reason he cites to explain American companies' loss of their competitive edge. He likens the atmosphere at pre-Hanson USI to a country club's. The company had moved from New York to a spacious new building with a view on Dolphin Cove, a picturesque inlet of Long Island Sound in Stamford, Connecticut. In the summer the staff knocked off at 5:30 P.M.—a half hour earlier than normal—and at noon on Fridays. "That is not an appropriate way to run a company," says Clarke. "We are fighting a war with the Japanese, the Taiwanese, and the Europeans, and you don't want your people sitting on a golf club green."

Quickly Clarke homed in on superfluous staff specialties. "We start out with a zero-base premise," he says. "We want to keep nothing more than what it takes to get the job done." His first act: firing the four-person economics department. "I don't want economists taking away the authority of managers," he says. "As CEO, I want my managers to sign in blood what *they* think housing starts will be."

Then he got rid of 30 outside consultants: "Why should the company spend another $2 million a year to help me do my job?" He eliminated a central marketing department and the real estate department, which had not sold a parcel of property in three years. Clarke explains: "The problem with an in-house capability for something like real estate is that this guy puts himself out of business if he achieves his goal, which is to liquidate property." Within a year Clarke sold USI's headquarters building for $9.4 million.

NINA BARRETT

Once a temple *for staff, General Foods' headquarters now houses mainly operating employees.*

AT SCM he pulled the plug on an immense data services center in North Carolina that cost $8 million a year. Though many streamlining companies are letting computer services grow, Clarke felt the center was overloading his executives with information, making it harder for them to reach decisions, not easier. He also jettisoned SCM's management training center on the Hudson River and its 26 staffers. "Hiring and developing the right people is the most important thing I do as a manager," he says. Strategic planners are another group of employees that bit the dust. Clarke reasons that strategy is too important to be left to experts; managers must do it themselves. Like most other executives, he says he gets no kick from firing people, but adds, "You shouldn't let the human element affect the basic business decision." He tolerates lawyers as a necessary evil and instructs them to resolve issues rather than prolong them.

Clarke maintains that keeping an organization streamlined is second in importance only to creating an excellent product at the right price. It's like sailboat racing, he says. He won the Newport-Bermuda race last year in part by staying lighter than most other boats. As competing craft loaded up on beer and food, sinking farther into the water, he took only the required five gallons of water per crew member plus dehydrated food to save weight. Rather than getting a good sleep below deck, the off-watch crew often clipped themselves to lifelines on deck to keep the boat sailing flat and fast.

"There was nothing in that boat that we didn't need to get to St. David's Lighthouse in Bermuda," Clarke says. "The old guard at the yacht clubs say minimalists like me are ruining the sport by making sailing unpleasant. But I'm not in it to be comfortable. The winning is the fun. That's the whole point."

A company that runs an even tighter ship than Hanson is Nucor, the feisty mini-mill company in North Carolina that is fast becoming a maxiplayer in steel manufacturing. Its big advantage is that it did not have to streamline—Nucor never built a giant staff. With revenues that will pass $800 million this year, it maintains a corporate staff of 17 people. "That's up 6% this year too, because we added a person," says Chief Executive Ken Iverson. Total corporate costs, including office space: $8.6 million last year, or a minuscule 1.3% of all costs. Corporate costs that rise above 5% begin to put an excessive burden on operating units, according to McKinsey. Nevertheless, some companies are hard put to keep them below 15%.

HOW DOES NUCOR do it? Iverson says CEOs ask him this question more than any other. He has decentralized his 14 divisions to the point where they could probably run by themselves if they had to. Each business operates as an autonomous company in a regional market, making all its operating decisions. The tiny central office monitors budgets, cash flow, and operations. Iverson occasionally employs consultants for economic forecasting but more often uses published forecasts on the steel industry he can consult for next to nothing. Strategic planning? He sits down three times a year with his general managers to discuss how to allocate the company's capital.

Hanson and Nucor are models for many of America's corporate behemoths as they begin the tough job of eliminating long-embedded staff. The simplest and most radical approach, many chief executives have concluded, is to let operating managers decide what corporate services—from public relations to real estate management—they are willing to pay for out of their own budgets. That's what General Foods is doing. "We wanted to make it easier for each of our operating companies to decide exactly what resources it needs to pursue its business interests," says Chairman Philip Smith. "They alone will decide what they need to be competitive."

continued

One of the dangers of decentralizing corporate staff is that a number of oversize staffs can bloom lower down in the organization. Example: Mobil. In its oil and gas operations Mobil long maintained some two dozen regional centers, a half dozen divisional offices, plus its New York corporate headquarters, all of which were staffed as if they were separate companies. As though guided by some internal genetic structure, each of these management centers cloned the staff group of the office to which it reported. Each generally employed 175 to 200 planners, lawyers, controllers, human-resources people, systems experts, and so on—some 6,000 altogether.

The little-company syndrome, as some Mobil executives referred to their bureaucratic malady, was costly, laborious, and a drag on decision-making. According to Don McLucas, head of human resources and the man who coordinated Mobil's cutback program, staff specialists often created their own lines of authority parallel to the operating hierarchy's. With staff matrices on top of matrices, decisions could take months, even years, as each management center conducted its own review and added its own recommendations to be considered by the next level. McLucas recalls that a $1 million decision by Mobil Française to buy a gas station in downtown Paris, for example, was reviewed by four additional management layers. The four: Mobil Europe, the international marketing and refining division, the worldwide marketing and refining division, and finally Mobil Oil Corp. in New York.

Trying to limit the staff at each center would often lead to long debates about precisely how many planners or accountants were necessary. McLucas says: "We concluded that if we didn't eliminate some of these management offices entirely—get rid of the whole goddamn thing—our reduction program wouldn't work."

MOBIL HAS HALVED its 24 regional offices to 12 in the past five years and reduced the duplication of staff at its six division offices and headquarters. Overall it has cut corporate staff by one-quarter—the same proportion by which it has reduced total employment. Staff jobs should be even fewer by 1990, when the oil giant expects to finish moving its corporate headquarters and divisional offices into one complex in Fairfax, Virginia.

As companies scale back corporate hierarchies, many are redefining the role of the head office. The notion of an elaborate system of checks and balances with parallel lines of reporting—which found its most extreme expression at ITT under Harold Geneen—is out. The new trend is to think of the corporate center as a small merchant bank or holding company, investing capital among various enterprises, monitoring the profitability of each against projections, replacing underachieving top managers, and constantly looking for new investment opportunities. As McKinsey's Coley says, "It doesn't take a cast of thousands to do that."

> The new trend is to think of the corporate center as a small merchant bank or holding company, investing capital among various enterprises. "It doesn't take a cast of thousands to do that."

Burlington Northern, the railroad and natural resources company, reorganized itself six years ago. It changed from a traditional integrated American corporation into a holding company. The headquarters staff, 50 to 60 managers, moved from St. Paul to Seattle. One reason: so they would not dabble in everyday operational problems back in St. Paul or worry general managers by looking over their shoulders. The operating managers compete for capital allocation—the best performers get the most capital—creating new pressures to run as lean as they can. Total employment at the railroad has fallen from 57,000 to 33,000. Its management group has shrunk from 6,000 to 3,700, with corporate staff sustaining a disproportionate share of the cuts. Computer services is the only area that has grown.

Even big, vertically integrated firms that don't want such a radical transformation are narrowing their corporate focus to basic strategic goals rather than tactics. Says Ford's human-resources chief, Peter Pestillo: "The corporate role at Ford has changed from audit and review, or the oversight of other people, to corporate strategy, or what the company ought to be doing."

Some companies have handed to corporate staff the job of reducing corporate staff. That arrangement rarely works well. AT&T tried it and has eliminated at least 12,000 staff jobs; it still has 18,300 left. The company is decentralizing, though perhaps not enough. It is dispersing many corporate functions, such as public relations and marketing, to seven regional hubs, each of which will serve AT&T's various businesses in that region. But ultimate authority remains firmly in New York. Hub staffs report to counterparts at headquarters, which also decides how to allocate corporate overhead costs to each of the units. "The operating managers don't have the choice to do without all staff services," admits Charles Marshall, AT&T's vice chairman for personnel, who adds that the managers often blame their skinny bottom lines on overhead charges.

YET LEFT ALONE—and with powerful motivation—AT&T operating managers have shown they can cut staff as well as anyone. After deregulation, fierce competition nearly drove out of business the division that makes and markets phone products. With the blessing of the New York headquarters, its operating manager, Victor Pelson, turned the business around by short-cutting corporate channels. "There was not time to go through the traditional organization and prepare reports and fancy review graphs," he says. "We had to toss the problems right in the laps of the line people."

They changed the entire product mix in 18 months, opened a factory in Singapore within a year, closed half the business offices and phone stores, and cut division staff by half, or some 10,000 people. Pelson says, "The traditional staffs were cut the most. We reduced senior vice presidents by two-thirds." Up to then such bold actions in such a short time were unheard of at AT&T. But no longer. Pelson has been promoted to head AT&T's general business systems division, where he is doing more of the same.

While staff reduction begins as a cost-cutting exercise, it usually accomplishes much more. Decisions are made faster; managers get closer to their markets. Companies that have shrunk staff find that these effects are almost always more valuable than the initial cost savings. Above all, paring the staff highlights a lesson that is often forgotten in good times and relearned in bad: Line managers are the stars of business. They probably know what they need to do their jobs. If they need help, let them ask for it—and pay for it. F

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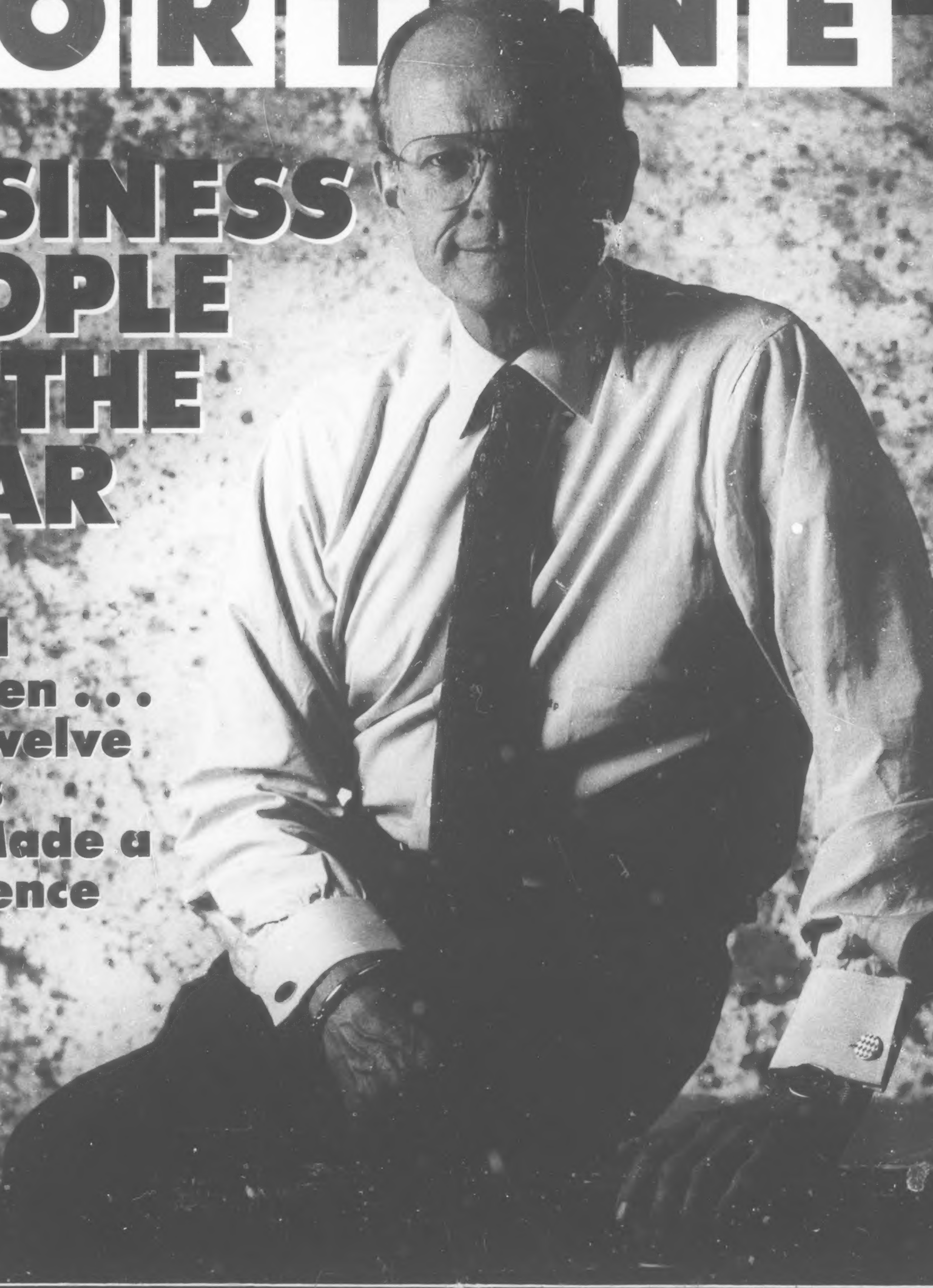

BUSINESS PEOPLE OF THE YEAR

Ford's Donald Petersen . . . And Twelve Others Made a rence

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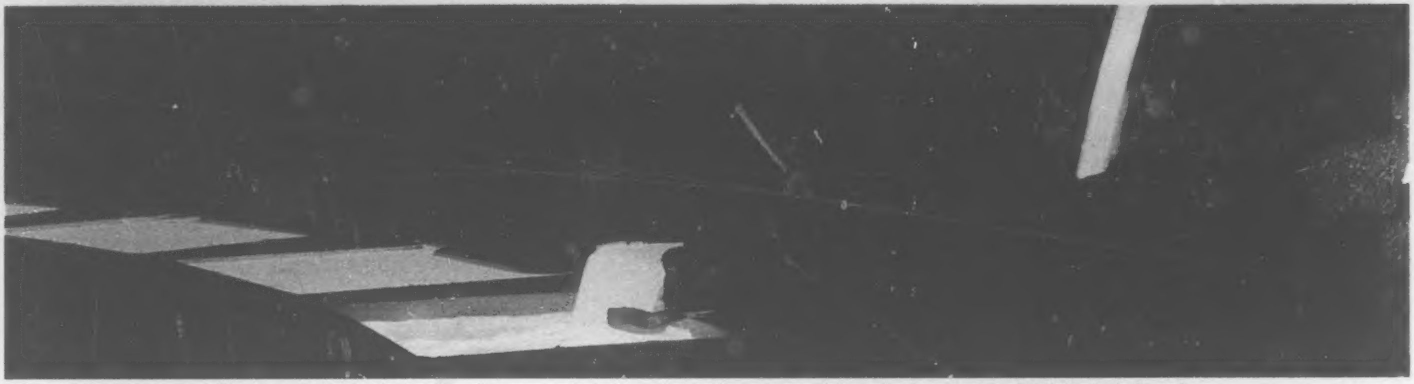

Who makes money making copper? Phelps Dodge does now. It is booming—like many of America's once troubled basic industries. PAGE 54

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WHAT SHAPES—and shakes—the world of business? Not a lot of uncontrollable forces but the decisions and actions of remarkable men and women. FORTUNE's 22-page report on the Business People of the Year focuses on a baker's dozen of extraordinary individuals. They range from a German scientist who pads around his lab in white socks and sandals to the buttoned-down manager who turned Ford into the world's most profitable automaker.

The report was supervised by editor Geoffrey Colvin, an inveterate people watcher. "Many readers won't know a thing about some of these people," Colvin notes, "yet each did something of great importance this year. Take Reginald Lewis. In one act, one deal, he changed the perception of black business in America." Though editing tends to be a behind-the-scenes profession, Colvin is himself a fairly well-known person: His *Inside Business* broadcasts are heard on many CBS radio stations.

The writers shown here discovered unexpected details about their subjects that make their stories compelling. By tracking down Elaine Garzarelli's mother, reporter Chris Knowlton learned that the investment sage of Shearson Lehman Brothers was a wild teenager whose competition with her brother spurred her to academic excellence. Citicorp's chairman, John Reed, opened up after he learned that Los Angeles bureau chief Brian O'Reilly had tracked down *his* brother. In a long interview, O'Reilly asked if his sibling was correct in describing Reed as a poor student when he was a child. Reed said yes, and for the first time publicly discussed his problems with dyslexia.

"Biography is one of the best-selling categories of books," Colvin observes. "That means people are most interested in reading about people, particularly unusual and successful people." We think you will enjoy meeting these.

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When E.F. Hutton talked, Shearson's Cohen, right, bought the firm.

JON SIMON—GAMMA/LIAISON

National Association of Convenience Stores, whose members pump a third of the gas sold in the U.S., complain about the cost: between $12,000 and $25,000 per station.

Gas pumpers would rather see the fumes captured in the charcoal-filled canisters on a car's fuel line. The EPA announced plans last summer to require bigger canisters than the ones already in place. Automakers balked, claiming they would cost $80 a car; the EPA says the figure is $19.

Recently New York, New Jersey, and the six New England states announced plans to join California in requiring that only gasoline low in butane be sold during the summer. Butane would be allowed to rise slightly in the winter, when it is needed to speed ignition. The EPA proposes a similar plan.

Autos sold in the U.S. after 1971 have been designed to run best on gas that adheres to the lower limits. But refiners object. William O'Keefe, vice president of the American Petroleum Institute, claims the decrease in butane will lead to increased imports because more crude oil will be needed to produce a gallon of gas.

STAFF *Kate Ballen, Alan Farnham, Carrie Gottlieb, Christopher Knowlton, Stephen J. Madden, Louis S. Richman, Patricia Sellers*

Shearson Hutton?

■ Whatever they name it, the behemoth formed by the merger of **Shearson Lehman Brothers** and **E.F. Hutton** could become the best-integrated and most profitable brokerage house in the U.S., surpassing rival **Merrill Lynch** in equity capital and the number of worldwide offices. Says Stephen Schwarzman of the Blackstone Group, who helped Hutton negotiate the merger: "This is a ten-strike deal for Shearson."

The guy with the ball is Peter Cohen, 41, who prefers gardening to bowling. Cohen arranged the Lehman acquisition in 1984 and deftly merged the two firms. One of Wall Street's toughest managers, he runs Shearson like an industrial company, keeping a sharp eye on costs. Reportedly willing to pay $1.6 billion for Hutton last year, he picked it up recently for $960 million. Says he: "Obviously, I feel okay about the price."

Morale at Hutton has been poor since a 1985 guilty plea to a check-kiting scheme launched the firm on its toboggan run to extinction. Nor will it improve soon. Layoffs and attrition will cut about 5,000 of the 20,000 New York–based employees of the combined firms. But Cohen is determined to retain as much of the sales force as he can, especially key Hutton producers, brokers who bring in $500,000 or more in annual commissions. Says Cohen: "Size isn't the issue for us. We just want to be good."

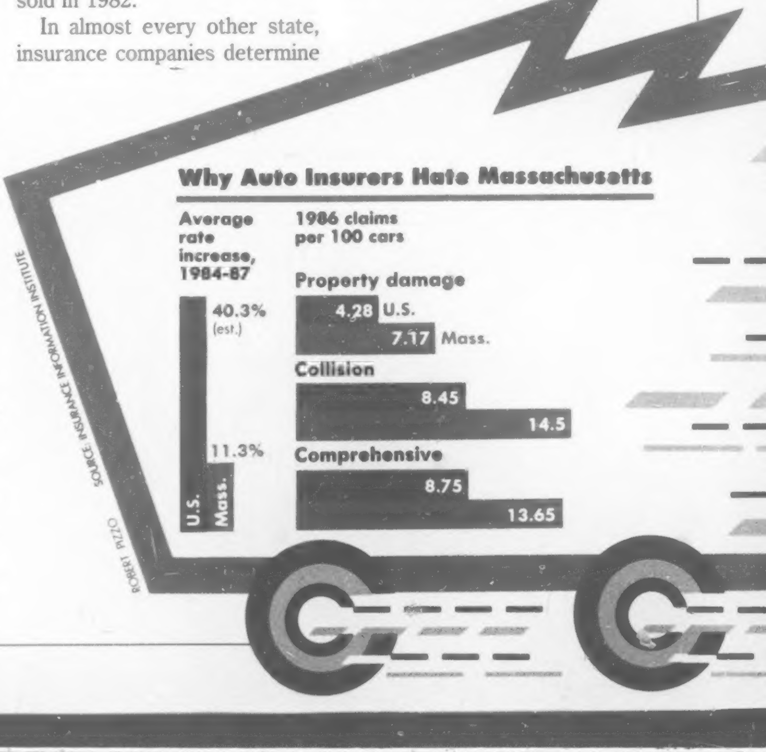
No Massachusetts miracle for insurers

■ While Massachusetts Governor Michael Dukakis campaigns for President on his state's economic successes, one group of companies is bailing out of the Bay State: auto insurers. **Fireman's Fund** recently decided to hit the road after losing $31 million on its auto business last year. Now **Kemper Group**, with projected losses of $37 million for 1987, wants to pull out too.

Massachusetts has the highest rate of car theft in the U.S., and fully 54% of the drivers fall into its high-risk category. State law prohibits insurance companies from charging bad drivers higher premiums. Instead the insurers put all the high risks into a pool, and the companies pay a share of those claims according to how much insurance they sold in 1982.

In almost every other state, insurance companies determine rates, subject to approval by the state. In Massachusetts the insurance commissioner sets the premiums. Insurers say these rates do not cover costs, and want a 32% increase. Since Massachusetts auto rates are already among the highest in the U.S., they are unlikely to get even half that.

It gets worse. Dukakis's miracle state penalizes insurance companies that try to leave. Fireman's Fund agreed to pay $45 million as an exit fee. This amount will help cover Fireman's share of the high-risk pool over the next few years.



SOURCE: INSURANCE INFORMATION INSTITUTE

ROBERT PIZZO

A fare break for Europe's flyers?

■ In about the same amount of time—2½ years—it took Ronald Reagan and Mikhail Gorbachev to agree to eliminate an entire category of nuclear missiles, the Common Market's 12 transportation ministers came up with a scheme to deregulate Europe's airlines. But don't expect atomic impact: Those stratospheric Eu-

AMERICA'S COMPETITIVE REVIVAL

The awful trade figures obscure a striking fact: The U.S. is now the low-cost producer in many industries.

■ *by Sylvia Nasar*

SO SUDDENLY that it almost defies belief, the U.S. has seized the lead in the race for global competitiveness. Many of its industries have become the world's low-cost producers. Manufacturers on U.S. soil are gearing up to send Fords to Frankfurt, TVs to Tokyo—perhaps even steel to Seoul. As a result, the export boom now gathering momentum could rival the one that started in 1977 after the dollar fell 25%.

Despite another record trade gap in October, U.S. exports are up 13% from a year ago and are rising three times faster than world demand. Half the increase in industrial production during the third quarter came from exports—and that was before the dollar's October plunge. As Donald Straszheim of Merrill Lynch puts it: "The U.S., not Japan, is the export-led economy now."

How to account for the sudden reversal? The cheaper dollar, of course. But the currency shift could not do its job had it not been preceded by the gut-wrenching overhaul of industry upon industry, including all-out efforts to raise efficiency, slash costs, make better products, and sell them more aggressively. Finally, it's beginning to become apparent that the U.S. was not quite the industrial basket case many made it out to be.

A caveat: Gains—at home and abroad—will not come as easily this time as they did in the late Seventies, when the U.S. enjoyed a string of trade surpluses that lasted through 1981 by claiming its piece of an ever-expanding pie. Today many imports have made themselves thoroughly at home in the U.S., and markets for exports are growing only sluggishly. U.S. companies will have to grab market share back from competitors who are much tougher now. Among them are Latin American and East Asian newly industrialized countries (NICs) that can pick up new technologies almost as fast as they are developed in the major industrial nations. But barring highly improbable reversals—a resurgence of the dollar, a relapse on the part of U.S. industry—the U.S. should be able to recapture a great deal of business. The physical volume of the trade deficit turned long ago, and the dollar balance will follow as rising import prices start hitting sales harder.

There's no question that the dollar's decline is the chief player in the new competitiveness drama. Today it is back to where it was in the days when the U.S. ran healthy trade surpluses. On the trade-weighted index of the dollar vs. ten currencies compiled by the Federal Reserve, the dollar now stands just about at its 1980 value. Since U.S. exporters haven't raised their dollar prices much, overseas customers have been handed a discount that amounts to rolling-back prices five or six years.

True, the dollar has weakened only a little or not at all against the currencies of partners that account for roughly half of U.S. trade: Latin America, Canada, and the newly industrialized countries of the Pacific Rim (except for the Taiwan dollar, which has appreciated about 37% since 1985). What that observation overlooks is that the dollar did not strengthen much against these currencies in the first place. The modest weakening has put the dollar back where it was in 1980.

The new currency relationships powerfully boost the ability of the U.S. to compete with virtually all its major trading partners. It now has a clear edge over European manufacturers. They account for about a quarter of U.S. trade, with the U.S. importing shoes, cars, aircraft, organic chemicals, and machinery and exporting aircraft, computers, and chemicals. In West Germany current trends are working heavily against exporters. Though many are moving to restructure, particularly in the metals and capital goods industries, wages are advancing at a rate of 4.5% to 5% a year and productivity is stagnating.

REPORTER ASSOCIATES *Leslie Brody and Lorraine Carson*

A triumph of technology: *Countries like Chile*

have richer ore and cheaper labor, but Phelps Dodge can make copper for less with its new "electrowinning" process that extracts pure metal from mining wastes.

Japan's tremendous price advantage has all but disappeared: Manufacturing costs are about the same now as in the U.S. The Japanese are responding with breathtaking speed by holding down wage increases and boosting productivity. The strong yen, moreover, is slashing the cost of imported raw materials such as coal and iron ore. But these trends cannot wipe out the effects of the huge appreciation. The U.S., whose exports to Japan have been concentrated in aircraft, computers, organic chemicals, and pharmaceuticals, will now be able to export more cars, steel, and machine tools.

The U.S. is at least as competitive against Canada, its largest trading partner, as it was at the start of the Eighties. The Canadian dollar is about 12% weaker than in 1980, but unit labor costs have risen more than in the U.S. The trade deficit with Canada has increased chiefly because of faster U.S. growth, especially the five-year surge in auto sales. American carmakers build components, large cars, and minivans in Ontario to take advantage of cheaper labor and energy costs.

American competitiveness has improved least against the NICs, which account for nearly as much of U.S. manufactured goods trade as the Europeans. Labor costs are a fraction of those in industrialized countries. Productivity is rising rapidly. And so are these countries' manufacturing savvy and production capacity. Even so, U.S. exports

PHOTOGRAPH BY MICHAEL MELFORD

to the NICs should grow since they include many components for assembly and re-export, some destined for third countries.

No one should be surprised or dismayed that the competition is tougher today than it used to be. "That's what we mean by economic development in the rest of the world," says William Branson, an economist at the International Monetary Fund. Since the late Fifties, other countries have been closing the gigantic lead in economic power held by the U.S. at the end of World War II. Productivity, real wages, and profitability in manufacturing have been growing faster abroad than in the U.S. Similarly, the American edge in technology—in everything from spacecraft to supercomputers—has shrunk. Americans can no longer claim to make the best of everything: Others now build better cars, 256K D-Rams, TVs, and high-performance machine tools, to name just a few.

But the major causes of today's trade deficits lie in forces that manufacturers could not control—the strong dollar, powerful U.S. domestic demand, and the collapse of Latin American export markets due to those countries' heavy debts.

IT IS EASY to forget that the U.S. is still the world's biggest producer in most major industries, among them aluminum, paper, aircraft, and computers. It is the technology leader in computers, scientific instruments, and telecommunications equipment. Its overall factory productivity is still the highest, though Japan has passed it in such industries as autos and electronics. And its industrial production has risen faster in the Eighties than in most other countries.

Lately, capital investment has been more robust than is generally appreciated. Capacity has expanded by one-fourth since 1979, more rapidly than in other industrialized countries. Walter Cadette, an economist at Morgan Guaranty, points out that the ratio of net capital stock to labor has recently been rising at its historical trend rate of 3% a year in manufacturing. Says Cadette: "That's strong evidence that the comeback of productivity isn't a one-shot deal."

What's more, the aggregate investment figures hide an important change: Resources have shifted out of declining industries and into growing ones. For example, since 1979 capacity fell by 25% in steel, was flat in nonferrous metals, and increased a mere 5% in textiles. Meantime capacity soared 35% in instruments, 40% in computers and other so-called nonelectrical machinery, and 59% in electric machinery and components.

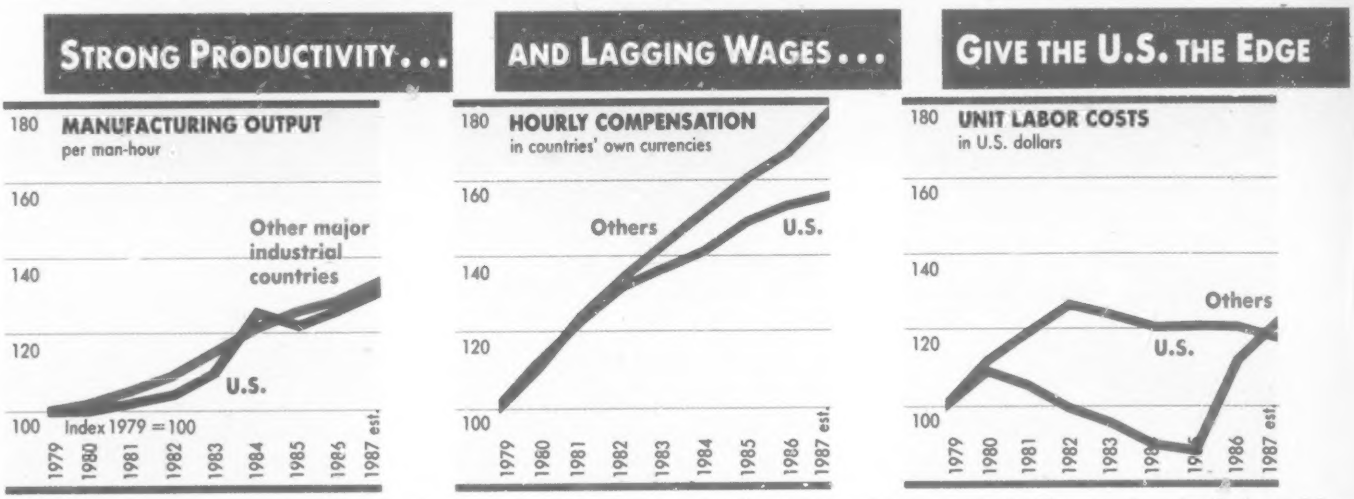
All this said, the U.S. did lose its fighting edge during the late Seventies. Productivity growth collapsed and costs raged out of control, rising some 40% between 1977 and 1981—far faster than abroad. All the while, those foreign competitors were getting tougher.

The critical changes began when the economy went into the tank and the dollar took off during the early Eighties. Company after company was forced to close inefficient plants and modernize others, spin off product lines it couldn't manage well, shed layers of bureaucracy, and trim the work force. What began as a desperate struggle for survival now looks increasingly like a sea change: a new managerial atmosphere in which competition at home and abroad forces continuous efforts to whittle costs, ratchet up quality, and develop new products.

Often the changes were spurred by corporate raiders and takeover threats. Unlike merger waves of the past, where the goals were diversifying, integrating vertically, or reducing competition, the restructuring wave of the Eighties was aimed at undoing an accretion of earlier bad strategic decisions—for example, promiscuous conglomeration. In most cases, says Robert Gay, senior economist at Morgan Stanley, financial restructuring went hand in hand with drives to improve efficiency and cut costs. More than half the mergers and acquisitions activity of this decade, according to a Morgan Stanley study, was concentrated in manufacturing, where international competition is hottest, though manufacturing accounts for just one-fifth of the nation's output.

THE RESTRUCTURING of the American pulp and paper business is a classic case. It enjoys comparative advantages galore. With a $110 billion domestic market, the industry can achieve tremendous economies of scale. Then there are all those fast-sprouting Southern pines, which mature in half the time it takes northern types. Japan, Scandinavia, and Canada, the largest producers after the U.S., can't expand capacity in commodity paper products because they cannot increase their raw material supplies enough, says security analyst Mark Rogers at Prudential-Bache.

But nature alone can't grow the fattest profit margins in the world, and plenty of other countries were giving the U.S. a hard time even before the dollar took off. The Finns



Since 1981 manufacturing productivity has grown faster in the U.S. than in other industrial countries—the first such spell in postwar history. Compensation has been rising more slowly. These trends—plus the lower dollar—have pushed U.S. unit labor costs below the average of its competitors.

THE WORLD'S TOP EXPORTERS

INDUSTRIES	1986 EXPORTS in billions of U.S. dollars	SHARES OF WORLD EXPORTS	1986	1980	World export growth rate 1986-95	OUTLOOK
AUTOMOBILES	**$185.8**	**JAPAN**	**29.1%**	24.6%	5.0%	Japanese manufacturers will keep gaining ground—partly by building in the U.S. Exports from U.S. carmakers will grow too.
		W. GERMANY	**20.7%**	21.5%		
		U.S.	**11.9%**	12.7%		
STEEL	**$63.0**	**JAPAN**	**21.0%**	22.9%	1.0%	The U.S. is narrowing the Japanese cost advantage and will remain the world's No. 2 steel producer, though a minuscule exporter.
		W. GERMANY	**16.1%**	17.1%		
		FRANCE	**9.2%**	10.4%		
APPAREL	**$57.0**	**ITALY**	**13.4%**	13.6%	8.4%	Pacific Rim producers will be the big winners. The U.S. industry will keep shrinking, but many manufacturers will prosper by filling niches.
		HONG KONG	**11.6%**	12.5%		
		KOREA	**9.2%**	7.5%		
TELECOM-MUNICATIONS	**$41.6**	**JAPAN**	**33.5%**	28.9%	8.1%	American makers will extend their dominance at the market's high end as the world shifts to digital technology. Japan is gaining at the low end.
		U.S.	**11.1%**	12.2%		
		W. GERMANY	**8.5%**	12.2%		
PETROCHEMICALS	**$40.6**	**W. GERMANY**	**16.5%**	17.7%	4.3%	U.S. products are highly competitive, but Canada, Venezuela, and several low-cost Middle Eastern oil producers are expanding capacity.
		U.S.	**14.8%**	16.6%		
		NETHERLANDS	**10.4%**	11.8%		
PLASTICS	**$36.2**	**W. GERMANY**	**21.3%**	22.3%	5.1%	Oil-rich countries have a growing cost advantage in commodity products. But U.S. export trade is booming in high-tech engineering plastics.
		U.S.	**13.3%**	15.0%		
		NETHERLANDS	**11.4%**	10.8%		
COMPUTERS	**$33.1**	**U.S.**	**30.9%**	47.1%	13.8%	U.S. producers will remain dominant, though some sales will come from new overseas subsidiaries. European and Japanese shares may rise faster.
		JAPAN	**19.7%**	3.8%		
		W. GERMANY	**8.8%**	10.5%		
INSTRUMENTS	**$30.6**	**JAPAN**	**27.5%**	22.0%	7.1%	A lead in software gives American producers the edge in sophisticated machines. Japanese and European rivals will set up factories in the U.S.
		U.S.	**18.3%**	20.1%		
		W. GERMANY	**15.7%**	17.3%		
PULP AND PAPER	**$27.7**	**CANADA**	**19.2%**	18.8%	5.7%	The U.S. industry, the world's biggest, is recapturing exports. Scandinavian costs are far higher. Canada mainly ships low-value newsprint.
		FINLAND	**14.5%**	14.7%		
		SWEDEN	**13.0%**	13.7%		
AIRCRAFT	**$26.1**	**U.S.**	**47.2%**	46.8%	2.5%	America rules the skies, but Europe's Airbus Industrie is aiming for 30% of the market by 1995. Many analysts think they'll get it.
		FRANCE	**16.9%**	14.0%		
		BRITAIN	**10.8%**	5.3%		
TEXTILES	**$23.4**	**JAPAN**	**16.3%**	16.0%	2.7%	The highly efficient and specialized U.S. industry should gain sales at home now that Japanese and European producers have no big cost advantage.
		W. GERMANY	**15.4%**	13.6%		
		ITALY	**14.6%**	12.6%		
PHARMACEUTICALS	**$20.0**	**W. GERMANY**	**16.0%**	16.5%	8.0%	A burst of new drugs and low production costs will fortify the U.S. market share. Foreign makers will expand production in the U.S.
		U.S.	**13.5%**	13.6%		
		SWITZERLAND	**12.0%**	12.2%		
SEMICONDUCTORS	**$18.1**	**JAPAN**	**21.6%**	11.3%	14.0%	Japan remains the champion cost cutter. Unless American companies shape up, the Japanese may grab 60% of the world market by 1995.
		U.S.	**18.3%**	22.5%		
		MALAYSIA	**8.3%**	11.3%		
ALUMINUM	**$15.1**	**W. GERMANY**	**13.3%**	11.5%	3.3%	Europe and the U.S. will lose in primary production to Canada and Latin America. But the U.S. will remain the biggest producer of finished metal.
		CANADA	**12.0%**	9.2%		
		NETHERLANDS	**7.0%**	6.9%		
MACHINE TOOLS	**$13.2**	**JAPAN**	**27.3%**	15.4%	2.6%	Germany dominates the high end and Japan the low, but the U.S. will hold its own from now on. Japanese companies will also build in America.
		W. GERMANY	**24.3%**	27.4%		
		SWITZERLAND	**9.9%**	7.7%		

SOURCE: DATA RESOURCES INC.

have offset their high costs by pioneering new technologies. The Brazilians, with abundant, cheap power supplies, are the low-cost pulp producers.

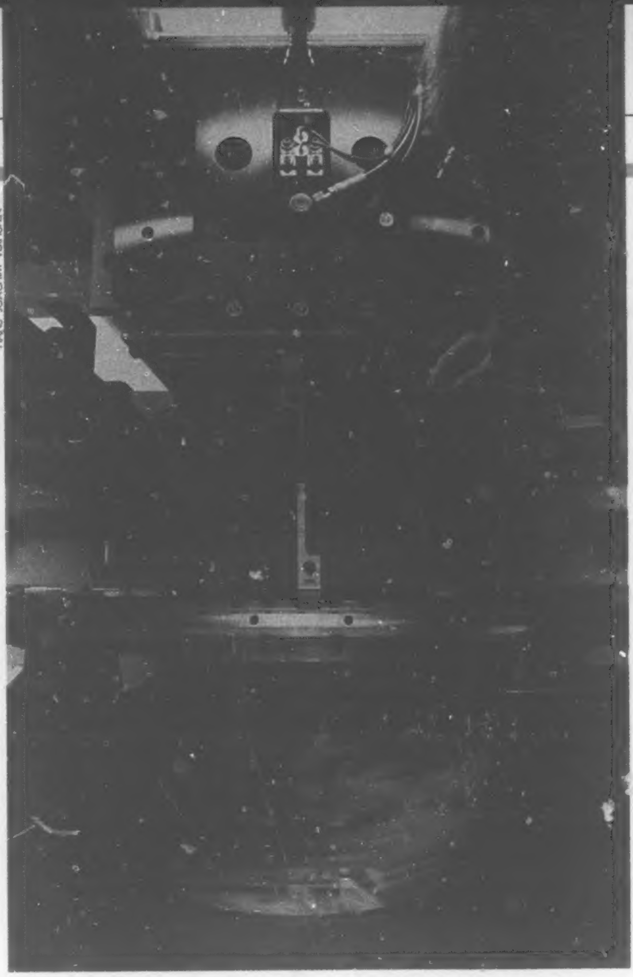
The phenomenal restructuring wave that swept America, swallowing giants like Crown Zellerbach, St. Regis, and Diamond International, has rationalized product lines, held down compensation, and retired old machinery. Analysts figure that a significant part of the industry's earnings explosion since early 1986 can be traced to the greater efficiency and cost consciousness restructuring brought. Today the industry boasts some of the most modern facilities, probably the highest productivity, and quite possibly the fiercest cost-cutting management in the world. These strengths, and the dollar's fall, are helping manufacturers regain overseas markets, especially in Europe and Japan.

A notably bad habit partly combed out of the American system during the upheavals of the Eighties was the self-indulgence of pay increases unmatched by productivity gains. For workers and middle managers, if not top executives, the changes have been dramatic. Manufacturing compensation, which had been rising 10% a year during most of the Seventies and outpaced gains in the rest of the economy, slowed to less than 2.5% a year by the mid-Eighties.

MORE IMPORTANT, compensation has been growing at a slower rate in the U.S. than abroad, and the trends have produced stunning shifts. German workers now earn about 25% more per hour than U.S. workers, says Roger Brinner, chief economist at Data Resources. Three years ago they earned 25% less. Japanese workers still get less pay than U.S. workers but the gap is narrowing: Today they earn 85% as much, vs. just 50% in 1984.

The steel industry was a paradigm of the case for wage restraint. For years management gave away the store to keep the labor peace; by 1982 average compensation, at $23 an hour, was 85% above the U.S. manufacturing average and barely on the same planet with rates in other countries. That has all changed. Compensation hasn't risen a nickel since 1982. Moderate wage increases from here on won't turn big steel back into a growth industry—20 million tons of capacity must still be cut in the U.S. alone. But along with work-rule changes, modernization, and the savage restructuring that has cut employment and capacity, they will help to keep the industry in business.

Productivity in U.S. steel trails that of Germany, but is now as high as in Japan. Labor costs per ton—the primary criterion of international competitiveness—were nearly three times costs in Japan or Germany in 1982. Now they have started to converge with those in other industrialized countries, according to John Jacobson, an analyst at the WEFA Group economic consulting firm. The real challenge, says Jacobson, is to displace German and Japanese exports in third markets. Since the U.S. now ranks 20th in exports, behind a cluster of African nations, such a development seems unlikely. Still, hope springs eternal. In a joint venture with Korea's Pohang Steel, USX will overhaul a West Coast plant (in, naturally, Pittsburg, California) to supply sheet to nearby appliance and can plants. Says Earle McIntire, a spokesman for USS/Posco Industries: "We also see some opportunities for exporting from here to the Pacific Rim. It would be a neat thing to pull off." Sure would.


HANS JOACHIM VERHUFEN

German ingenuity *makes Trumpf, the nation's biggest machine-tool builder, a leader in machines that turn out high-precision parts.*

Along with cutting costs, U.S. manufacturers are scoring powerful productivity gains. Since 1981 U.S. manufacturing productivity has been growing faster than that of other industrialized countries. Its long-term trend, around 3.5% a year, is nearly twice the rate of the late Seventies and matches that of the Sixties.

Productivity growth has been fastest in such heavily restructured industries as autos, where output per hour has been rising 6% a year since 1981. Ford, for example, turned out 10% more cars last year than it did in 1978, with 47% fewer production workers. A recent study of 38 car assembly plants in 13 countries by John Krafcik, an auto consultant at MIT, showed that U.S. plants no longer lag behind the Japanese in productivity across the board. Incredibly, some American plants—and relatively ordinary ones, at that, with no ranked masses of robots—had higher productivity than many of their counterparts in Japan.

Greater efficiency has helped lower production costs. At current exchange rates, the famous $2,500 cost gap between cars made in Detroit and in Toyota City has disappeared. And costs are 5% to 10% lower than in Europe. That is an added incentive—apart from import quotas—for Japanese and even Korean carmakers to set up American factories. By 1990 Japan will have built ten such plants producing 2.5 million cars, either in partnership with U.S. companies or on their own—the equivalent of another Chrysler.

The competitive picture for U.S. industry snaps into focus when you add up the elements. First tally the smaller wage hikes and healthier productivity growth to get labor costs per unit of output—the biggest factor by far in overall costs. On average, they have been level or falling during the Eighties in the U.S. while rising some 15% in other industrialized countries. Now combine these trends with the dollar's fall. Result: U.S. unit labor costs are more competitive now than they were in 1980. The International Monetary Fund's relative unit labor cost index, which compares the U.S. with other industrialized countries, is a full

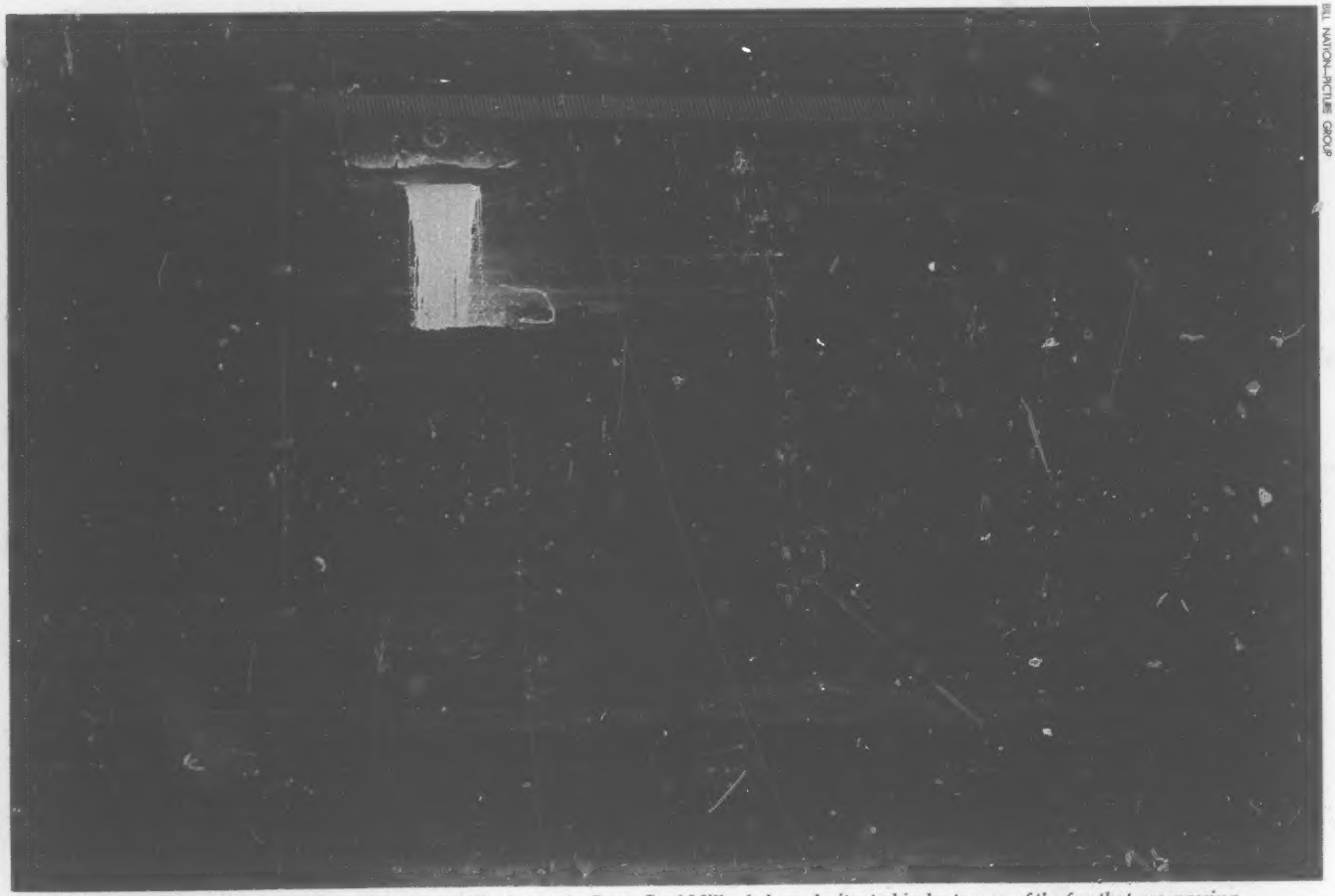
10% lower now. Meantime, wholesale prices—which reflect not only labor but energy, material, and transportation costs, among others—have been rising about 2.7% a year in the U.S. during the Eighties, vs. 6.3% in Europe. The IMF's relative index of producer prices for the U.S. now puts it 3% below its 1980 level.

FOR MANY INDUSTRIES, competitiveness increasingly means picking the right markets. Thanks to mammoth modernization efforts, the productivity of U.S. textile mills has risen more than 20% in the past five years, says Peter Harding, a partner at the New York management consulting firm of Kurt Salmon Associates. It is now the highest in the world. But while American textile manufacturers are currently on equal footing with those of Italy and Japan, their costs are 30% to 40% higher than in the NICs for products like lightweight shirting. Thus, the industry is concentrating on sophisticated materials like industrial fabrics, and goods such as sheets and towels that can be made using little direct labor. According to a recent study by the Office of Technology Assessment, quality has improved across a broad spectrum of goods. Textile exports, mostly to Europe and Canada, have soared 14% in the past year. Despite fierce competition, the U.S. share of world exports has been holding at around 6% since 1985. Japanese companies—and even some Korean ones—are looking to set up U.S. factories.

American producers are also fighting back by developing a service edge in the domestic market. The industry is counting on a computerized inventory management and ordering program called Quick Response that provides close coordination between textile mills, apparel manufacturers, and retailers. The system cuts in half the time between a fabric order and delivery of the garment to a retailer and gives all the parties better information for planning.

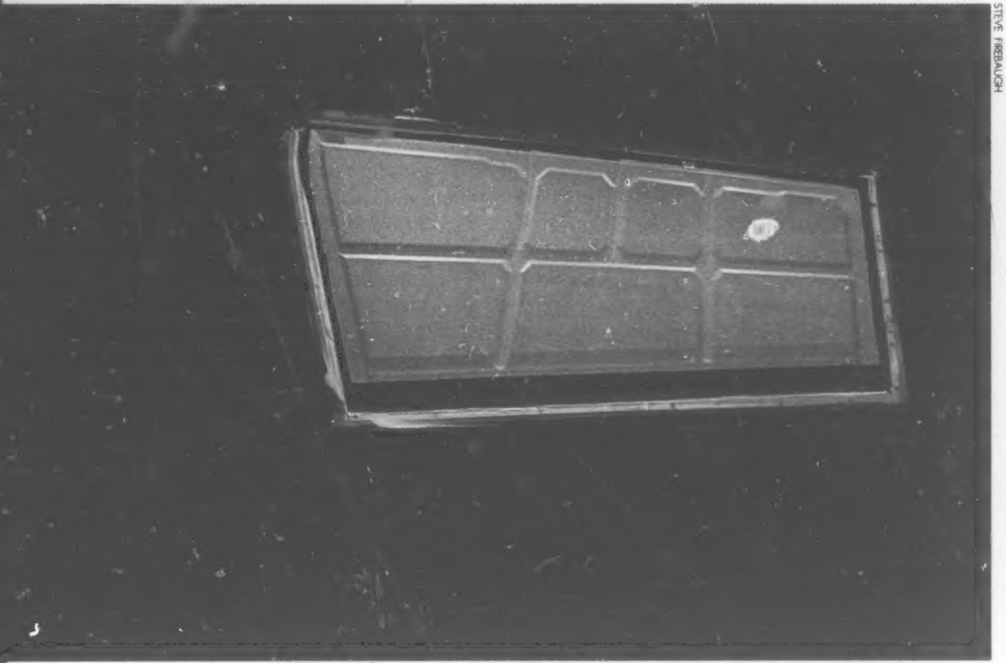
Few trends have made life more difficult for U.S. manufacturers than the increasingly rapid dissemination of the new technologies that once ensured its leadership. Other countries catch up fast. This has happened with aerospace, where the former U.S. monopoly is gradually becoming an oligopoly, and with semiconductors. Still, not all knowledge dribbles away, and America continues to make impressive technical advances. Contrary to popular notions that the U.S. has been giving technological development short shrift, the ratio of engineers and scientists to the total labor force has been rising faster than it has in either Germany or Japan. R&D spending has also increased sharply. As a share of GNP, it is near its 1969 peak and about the same as in Germany and Japan. While much is devoted to military research, manufacturing R&D has been increasing 8% annually after adjusting for inflation in the past seven years, three times the rate of the 1970s.

A deep pool of technical talent is one reason the U.S. remains the world leader in exports of instruments—among them, avionics, process control systems, and medical instruments. With the single—and important—exception of semiconductor test



BILL NATION—PICTURE GROUP

South Korea's low labor costs—*only about $20 a ton at the Posco Steel Mill—help make its steel industry one of the few that are growing.*



Double strength: *a Boeing 757 rudder built with U.S.-made epoxy graphite composite*

STEVE FIREBAUGH

equipment, U.S. manufacturers of other instruments more than measure up. Their share of world exports is climbing back after sagging in the mid-Eighties. And according to Marge Donnelly, an analyst at the U.S. Department of Commerce, U.S. manufacturers have a clear-cut lead in technology. European producers, namely Germany and France, have generally offered good products at reasonable prices but aren't on the frontiers of product development.

The biggest competitive threat comes from Japan, which dominates the market in VLSI (very large scale integration) testing devices, which check the quality of elaborate chips. Japanese exporters, such as Fujitsu's Advantest subsidiary, are responding to the strong yen by rushing to start production in the U.S. But American manufacturers have a big advantage in software, and their lead is likely to lengthen.

Leadership in software should also help the U.S. computer industry stay on top of the world. Buyers look for packaged solutions that combine hardware and software, and depend heavily on the seller's expertise in marketing and servicing the system once it's installed. Says Van Weathers, an analyst at Dataquest, a market research firm: "You can't achieve that by manufacturing lots and lots of boxes." A recent survey of the industry by *Datamation* revealed that the overwhelming majority of respondents believe the U.S. is the leader in every product group from supercomputers to software. The Japanese computer industry does better at home than in export markets, to which it mainly ships disk storage devices, printer components, and other peripherals that do not depend on much system expertise.

THE REWARDS of spending on R&D (and the penalties for not spending) are especially evident in the pharmaceutical industry. Until the mid-Sixties the U.S. dominated world markets. Then Europe and Japan began outspending it on R&D and capturing a growing share of new patent drugs—the precursor of future market shares and profitability. Recently, however, U.S. firms have boosted R&D outlays. These have jumped about 15% a year during the Eighties, with the ratio of R&D spending to sales also topping 15% recently. After declining sharply from the mid-Sixties to mid-Eighties, the U.S. share of new drug introductions is back up to one-third. The Japanese share, however, has lately also climbed to one-third, up from about one-fifth in the late Seventies.

Heavy R&D spending—some of it by the Defense Department—also gives the U.S. an edge in so-called engineering plastics, used in packaging (for food cooked in microwave ovens), autos, housings for computers, and aircraft, like the component at left. Though they account for only 5% of plastics production, export demand for engineering plastics has tripled in the past year. At the commodity end of the plastics business, by contrast, the U.S. is still the world's largest producer and consumer, but many American manufacturers have moved offshore; feedstocks determine cost competitiveness and oil-rich countries, including Mexico, Canada, and Saudi Arabia, are the low-cost producers.

For some industries, just being in the U.S. will ensure a certain amount of business. Take machine tools. The Germans, the world's second-biggest producer after Japan, dominate the high-performance, high-precision niche in most product lines. The Japanese control the low end. While top U.S. companies—the likes of Ingersoll Milling, Cincinnati Milacron, and Cross & Trecker—can compete head-on with the best of the Germans and Japanese, most others possess no clear-cut technological advantage except in software for computer-controlled machines.

Yet the American industry is about to get a break from several trends. The trade picture has already brightened. Exports shot up 16% last year, while the flood of imports slowed a bit. The rush by Japanese automakers to set up production in the U.S. will bring important new customers. Japanese machine toolmakers, including Okuma, Japan's largest, are also investing in factories in the U.S., often in joint ventures with American-owned companies. "The single most important thing is that North America is now the most cost-effective location for manufacturing in the world," says Richard Lindgren, CEO of Cross & Trecker. "This is the biggest market, there is more volume here, and high volume drives down unit costs."

Is Lindgren complacent about this development? Hardly. "We can compete now, but it's a moving target," he says. "We aren't going to be able to raise our prices much. So we have to continually improve productivity about 5% to 6% a year." Despite flat revenues, Cross & Trecker has cut $20 million out of selling and administrative expenses in the past three years and has boosted productivity by one-third since 1979.

For many industries, a competitive home marketplace has proved to be as much of a comparative advantage as cheap raw materials or technical talent. Fierce domestic competition is one reason the U.S. telecommunications industry has not lost its huge lead in technology, R&D, design, software, quality, and cost. Says Francis McInerney of Northern Business, a telecommunications research company: "Japanese and European companies are at a disadvantage because they don't have enough competition in their home markets. U.S. companies have been able to engineer a great leap forward because they saw firsthand what the competition could do."

Not every U.S. industry has risen to the challenge of the decade. The strong yen has demolished the Japanese semiconductor industry's 20% to 30% cost advantage in commodity chips. But whether U.S. producers are in a position to benefit remains to be seen. Says Glen Madland, chairman of Integrated Circuit Engineering in Scottsdale, Arizona: "We've been static. We haven't done anything." He points out that Japanese productivity is much higher: "The Japanese use four people plus automation, and we use 40 to do the same job." And U.S. yields—the ratio of usable chips to total production, which basically determines profitability—have not improved a lot. Says Madland: "Four years ago our yields were 45% and the Japanese yields were 90%. Now ours are 60% and theirs are 98%." He figures that the U.S. lags behind Japan by two or three years in chipmaking mastery.

In the meantime, Korea, which already has 3% or so of the world market in commodity chips, may triple its market share in the next five years. Though Korean yields are below those of the U.S., labor costs are just one-third to one-fifth as high. Davis expects market shares of the two big players to remain fairly stable. But if Sematech, the U.S. consortium that is supposed to help chipmakers improve their manufacturing skills, proves a failure, Madland is prepared to believe that Japan's market share, now 50% vs. the U.S.'s 40%, could jump to 60%.

SEMICONDUCTORS serve as a reminder of how quickly an industry can lose its world leadership. It would not take much of a lapse on the part of the newly revitalized U.S. manufacturers to fall behind again—particularly if the Europeans and Japanese respond to the strong-currency pressure as the U.S. did. The Japanese in particular have already shown striking resiliency in adapting to adversity.

The U.S. would pay a high price for losing the momentum it has gained recently. The unsustainable trade deficit would demand a much steeper fall in the dollar, swelling inflation and further diminishing competitiveness. Then hard times would arrive with a vengeance. The U.S. could stay competitive only if its wages fell, shrinking American living standards and, perhaps, forcing the nation to export the fruits of low-wage labor—the NIC syndrome—to settle its trade accounts.

But in general the companies that met the trials of the early Eighties most successfully did so by fundamentally changing their management philosophies, and they have emerged as industry leaders. At the same time the U.S. market, which was still insular back in the Seventies, has become the world's most competitive. As more foreign companies set up their new factories on American soil, the competition will grow hotter yet. In such an environment, those reborn managers seem most unlikely to fall from grace again.

BARTH FALKENBERG

Born in the U.S.A., *this Accord is on its way from Honda's plant in Marysville, Ohio, to Taiwan. Japan next? Honda is studying the possibility.*

■ THE 18-MONTH FORECAST: SURPRISING HELP FROM THE CRASH ■

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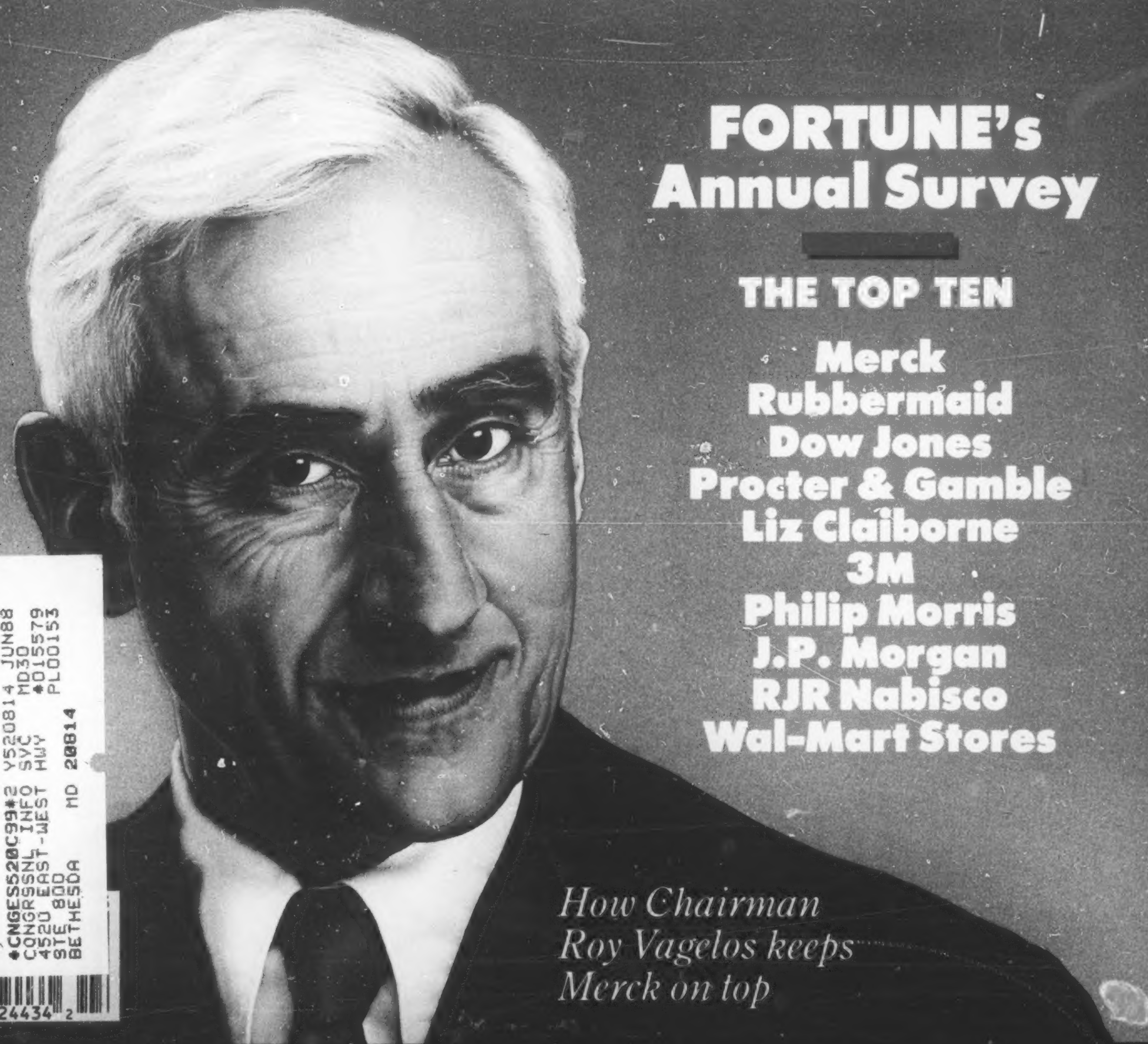

FORTUNE's Annual Survey

THE TOP TEN

Merck
Rubbermaid
Dow Jones
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Liz Claiborne
3M
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How Chairman Roy Vagelos keeps Merck on top

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FORTUNE

"Up until this year, let's face it, we were managing for survival."

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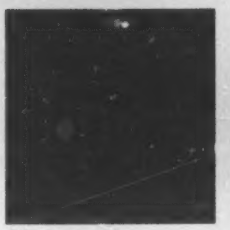

"In terms of management development, UPS is up there with IBM."

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"There is a simple method that indicates when an investment is turning up. All you have to do is sit down with a chart book . . ."

PAGE 101

"I think anybody who is black and has had a job in America has encountered racism in some form."

PAGE 109

By word and example he convinced the U.S. all over again that it is a "can do" country.

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"Oh yes, the corporate spirit. How much is it worth on the balance sheet? Sharp-pencil types may scoff. They shouldn't."

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THE EDITOR'S DESK

ANDY FREEBERG (2)

FORTUNE*'s Todd May and Vivian Brownstein see good economic news ahead.*

HOW'S BUSINESS going to be in 1988? Replies FORTUNE's chief economist Todd May: "Surprisingly good." While most economists are predicting a 2% increase in the gross national product, our call is 2.3%. May sees the fallen dollar and strong capital spending shoring up the economy. At the same time, "inflation won't spurt much and profits will improve." For the details, see FORTUNE's 18-month forecast on page 68.

Reporter Schultz

A year ago, FORTUNE predicted that the U.S. economy in 1987 would grow 2.1%; it now looks as if the figure will be 2.8%. As for inflation, we foresaw a 3.4% rise in the GNP deflator; the actual number appears to be 3%. For three straight years, FORTUNE's economists have been more accurate than the Blue Chip consensus, a group of some 50 distinguished professional forecasters. May is one of them.

FORTUNE is the only U.S. business publication to make its *own* economic forecasts. May and associate economist Vivian Brownstein use an econometric model, drawing on thousands of government and private statistics. This helps them discern the emerging patterns and predict the course of the economy and its specific sectors. Says Charles Burck, who edits the Economy section: "Todd brings the wisdom of a seasoned and skeptical observer to the process. He is unmatched at picking out the faint sounds of a trend from the statistical noise and monthly data."

Another of FORTUNE's unique features is our annual survey of Corporate Reputations. Reporter Ellen Schultz spent six months on the project. She pulled together the lists of 8,000 corporate managers, directors, and analysts who were queried for the survey, then evaluated the results and wrote our cover story. Her conclusion: "Over the long haul, the companies with the best reputations tend to have the highest total returns to their shareholders." Before we went to press, Schultz got many calls from executives and business professors eager to learn the survey results. They—and you—now can get them by turning to page 32.

Marshall Loeb
MANAGING EDITOR

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AMERICA'S MOST ADMIRED CORPORATIONS

Merck is No. 1 for the second year in a row, IBM falls out of the magic circle to No. 32, and two tobacco companies make it into the top ten for the first time.

■ *by Ellen Schultz*

THE PLAUDITS keep coming for the champ of the medical molecule makers. In a stunning demonstration of managerial excellence, Merck & Co. has earned the title of America's most admired corporation for the second year in a row. Rating 306 major corporations, executives, directors, and financial analysts surveyed by FORTUNE ranked Merck first in seven of eight measures ranging from innovativeness to quality of products to long-term investment value. IBM, which reigned as most admired for four years before being ousted by Merck, seems bent on demonstrating the adage about the bigger they come the harder they fall. Big Blue slipped to No. 8 last year and then went down for the count, sliding all the way to No. 32.

Earning nine points out of a possible ten, Merck won the highest overall rating ever in the six years the survey has been conducted. Thanks to the healthy performance of the company's cardiovascular drugs and antibiotics—plus the September roll-out of a new cholesterol fighter called Mevacor—Merck's projected 1987 sales will climb 20% and profits 30%. Said a survey respondent: "Merck is in the forefront of science, driven to innovate." (For how Chairman Roy Vagelos plans to keep Merck in the forefront, see page 38.)

Big Blue's decline reflects two years of disappointing profits. Fading demand for its mainframes and increasing competition from other manufacturers of personal computers and minicomputers have left IBM a little groggy. But Chairman John Ackers isn't throwing in the towel. "Following two difficult years for us, I'm not surprised by the survey's results," he says. "But IBM's employees have made tremendous progress in transforming us into a sharper, more competitive company."

By reputation, IBM remains a bastion of financial soundness (it ranks No. 4), but scored in the bottom half of the companies surveyed on innovativeness (No. 158). That may seem odd: IBM physicists have won Nobel Prizes two years running, in 1986 for the development of an atomic microscope and in 1987 for a major breakthrough in superconductivity. But IBM is not a technological leader in the marketplace, preferring to let competitors assume that risky role. In 1987, however, the company successfully launched a new line of personal computers and was the first to mass-produce megabit memory chips. Says Ackers: "Our challenge is to do even more to enhance IBM's business results."

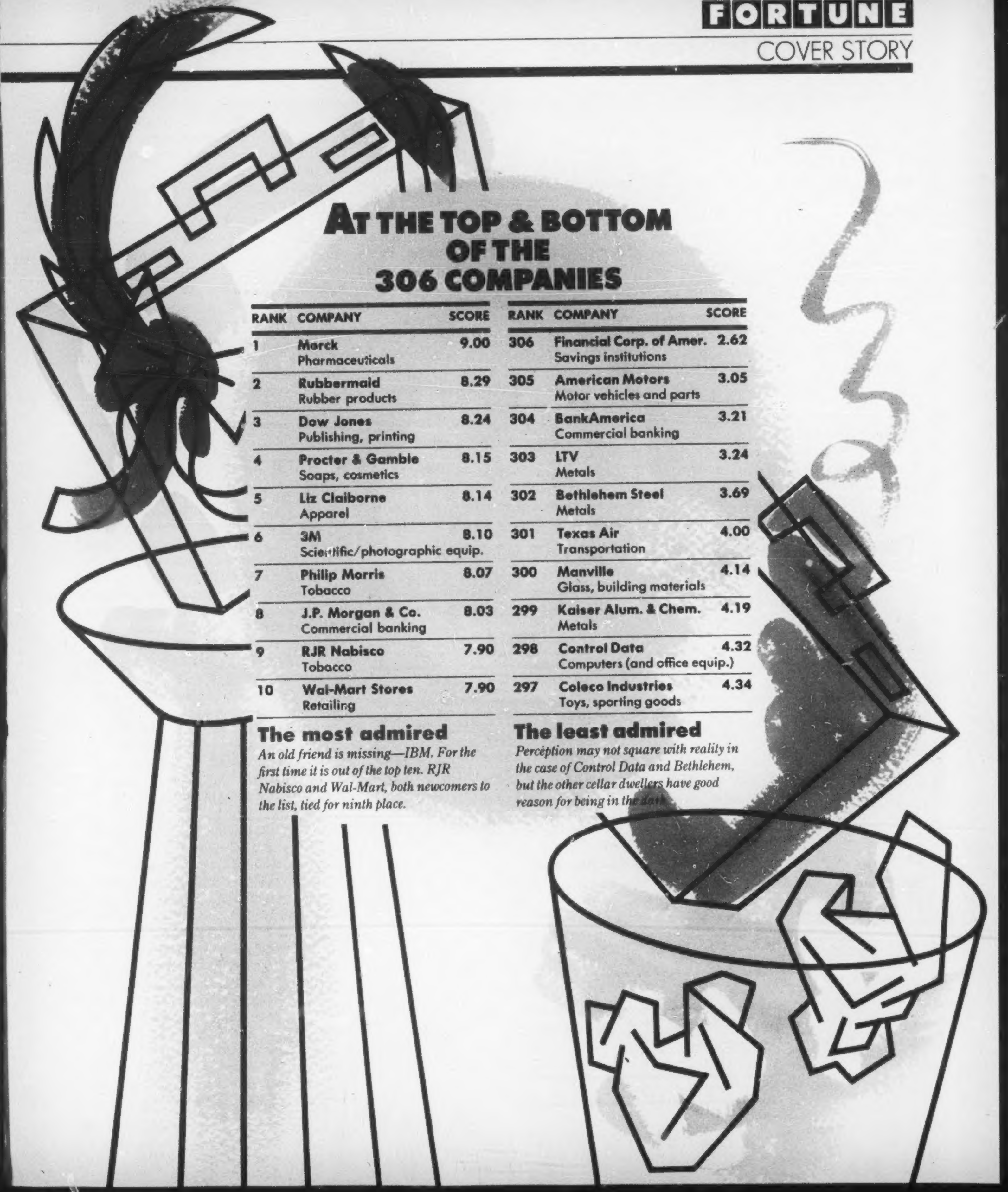
To this end he has boosted his worldwide sales force by nearly 11,000 people, redeploying many of them from corporate headquarters, in hopes of beating back the challenge from such competitors as Digital Equipment. While it's too soon to tell how successful Ackers will be in resuscitating profits, some survey respondents think IBM's troubles are temporary. Says one: "Present management is not to blame. The current strategy is probably far more astute than current profits would suggest."

HOW IT WAS DONE

■ FORTUNE polled more than 8,000 top executives, outside directors, and financial analysts for the sixth annual Corporate Reputations Survey. They were asked to rate the ten largest companies in their own industries—analysts ranked concerns in the industry they follow—on eight key attributes: quality of management, quality of products or services, innovativeness, long-term investment value, financial soundness, community and environmental responsibility, use of corporate assets, and ability to attract, develop, and keep talented people. Ratings are on a scale of 0 (poor) to 10 (excellent). Some 3,480 people responded to the survey, and 90% of the returns were in hand before the stock market crashed on October 19.

The survey covers companies that appear in the annual FORTUNE 500 and FORTUNE Service 500 directories. Companies are assigned to one of 33 industries according to the business that contributed most to their 1986 sales (or, in the case of financial companies, the largest share of their assets). Some industries have fewer than ten companies, but to appear in the survey an industry group had to have at least four. A total of 306 companies were included in the survey.

ILLUSTRATIONS BY ANDERS WENNGREN



AT THE TOP & BOTTOM OF THE 306 COMPANIES

RANK	COMPANY	SCORE
1	**Merck** Pharmaceuticals	9.00
2	**Rubbermaid** Rubber products	8.29
3	**Dow Jones** Publishing, printing	8.24
4	**Procter & Gamble** Soaps, cosmetics	8.15
5	**Liz Claiborne** Apparel	8.14
6	**3M** Scientific/photographic equip.	8.10
7	**Philip Morris** Tobacco	8.07
8	**J.P. Morgan & Co.** Commercial banking	8.03
9	**RJR Nabisco** Tobacco	7.90
10	**Wal-Mart Stores** Retailing	7.90

The most admired

An old friend is missing—IBM. For the first time it is out of the top ten. RJR Nabisco and Wal-Mart, both newcomers to the list, tied for ninth place.

RANK	COMPANY	SCORE
306	**Financial Corp. of Amer.** Savings institutions	2.62
305	**American Motors** Motor vehicles and parts	3.05
304	**BankAmerica** Commercial banking	3.21
303	**LTV** Metals	3.24
302	**Bethlehem Steel** Metals	3.69
301	**Texas Air** Transportation	4.00
300	**Manville** Glass, building materials	4.14
299	**Kaiser Alum. & Chem.** Metals	4.19
298	**Control Data** Computers (and office equip.)	4.32
297	**Coleco Industries** Toys, sporting goods	4.34

The least admired

Perception may not square with reality in the case of Control Data and Bethlehem, but the other cellar dwellers have good reason for being in the dark.

Concludes another: "IBM will catch up."

Rubbermaid occupies the No. 2 spot, up from fifth place in the previous survey. When he became chairman in 1980, Stanley Gault set a goal of 15% annual increases in sales, which the company has met in each of the past five years. In 1987 sales are projected to be up 16% and earnings 20%. Ranked third overall for both quality of management and innovativeness, Rubbermaid continues to roll out 100 new products a year, including office supplies, patio furniture, and toys. Says Gault: "Our objective is to have at least 30% of our sales in any given year come from products that have been introduced within the last five years."

Back up to No. 3 after slipping to ninth place in the last survey, Dow Jones, publisher of the *Wall Street Journal* and *Barron's*, was rated third overall in value as a long-term investment. Although national advertising linage was down 2% from 1986, reflecting a slump that affected the entire publishing industry, demand for the Dow Jones information services has increased, and company earnings are expected to rise 15%.

A shape-up diet helped Procter & Gamble fit into fourth place (up from 18th a year ago). P&G cut the fat from its shortening and cooking-oil business by closing four of its seven plants, and then it burned off some calories by killing the unprofitable Duncan Hines soft-cookie line. Three powdered-detergent facilities fell victim to the company's decision to put heavier emphasis on liquid detergents. Security analysts were also smacking their lips over the prospect that Olestra—P&G's synthetic fat substitute that is expected to do for fat what NutraSweet did for sugar—is within two years of reaching the market.

Liz Claiborne's descent to No. 5 (from No. 2) reflects tougher competition rather than a decline in reputation. Its scores in most categories were light-years ahead of those of its competitors. The reason Liz Claiborne has done so well, says the eponymous founder: "Plain, good old-fashioned hard work."

Last seen in the top ten in 1985, 3M has made its reputation for innovative products stick with Scotch tape and Post-it notes. Although the company's videotape and floppy-disk businesses are still losing money in worldwide price wars, 3M has managed an estimated 18% earnings increase in 1987. Help came from cost controls—3M chopped some 3,700 jobs in 1986—and such products as a new Scotch-guard process for carpets.

As it always has, J.P. Morgan ran ahead of the pack in banking. Like other banks, Morgan was forced to increase its reserves to cover Latin American loans, and that $875 million hit to the income statement produced the bank's first yearly loss since it went public in 1959. While security analysts fret about the soundness of other banks, Morgan is considered rock solid. "Everything that it does remains of the highest caliber," says Richard Fredericks, an analyst at Montgomery Securities. "This extends to lending practices, balance sheet integrity, and backroom operations."

TWO TOBACCO companies, Philip Morris and RJR Nabisco, made it into the top ten, an impressive achievement considering that their chief product cannot be sold without a warning from the U.S. Surgeon General that cigarette smoking causes cancer, heart disease, and emphysema. To compensate for fewer smokers, both companies have been diversifying into other businesses and turning out new types of cigarettes and brands to lure consumers from competitors. Philip Morris's Benson & Hedges now comes in nine varieties. Although the white male smoker, once the industry's mainstay, is vanishing, Philip Morris and RJR aggressively court such other segments of the market as women and blacks. Together the two companies account for nearly 70% of the $32-billion-a-year U.S. tobacco market.

Wal-Mart Stores, new to the survey this year because it is now among the ten largest retailers, shot straight to tenth place. In a flat season for retailers, Wal-Mart aggressively cut prices to spur sales and increase market share. Results: A 23% rise in earnings is projected for 1987. Writes a fan: "Wal-Mart represents the absolute best of American capitalism. It makes me feel encouraged about the U.S. and its ability to compete."

The companies held in highest esteem by survey respondents tend to be admired by investors too. That was borne out last year in the October 19 great crash (see table, left). From the beginning of 1987 to December 11, the median total return to shareholders (dividends plus capital gains or losses)

TWENTY STOCKS TOSSED IN THE STORM

The most admired companies came through the market crash like the champions they are. October 14 was selected as a benchmark because it was the day before the start of the staggering 769-point decline. American Motors was sold to Chrysler in August and missed the cataclysm.

Most admired

Percent change in total return to investors

	Precrash Jan 2–Oct. 14	Post-crash Oct. 14–Dec. 11	Total to date
Merck	+55.9	−17.5	+28.9
Rubbermaid	+13.6	−18.0	−6.6
Dow Jones	+3.8	−22.7	−19.5
Procter & Gamble	+25.7	−10.5	+12.9
Liz Claiborne	+19.9	−48.0	−37.5
3M	+27.6	−15.4	+7.6
Philip Morris	+57.0	−18.1	+29.3
J.P. Morgan	+12.2	−30.1	−20.9
RJR Nabisco	+28.5	−23.8	−1.5
Wal-Mart	+47.7	−32.4	0.0

Least admired

Percent change in total return to investors

	Precrash Jan 2–Oct. 14	Post-crash Oct. 14–Dec. 11	Total to date
Financial Corp.	−65.0	−38.1	−78.3
American Motors	N.A.	N.A.	N.A.
BankAmerica	−21.4	−35.9	−49.6
LTV	+130.8	−36.7	+46.2
Bethlehem	+188.0	−9.7	+160.0
Texas Air	−28.5	−56.5	−68.9
Manville	+66.7	−28.0	+20.0
Kaiser Aluminum	+45.0	−50.9	−28.8
Control Data	+31.8	−45.3	−28.0
Coleco	−1.5	−50.0	−50.7

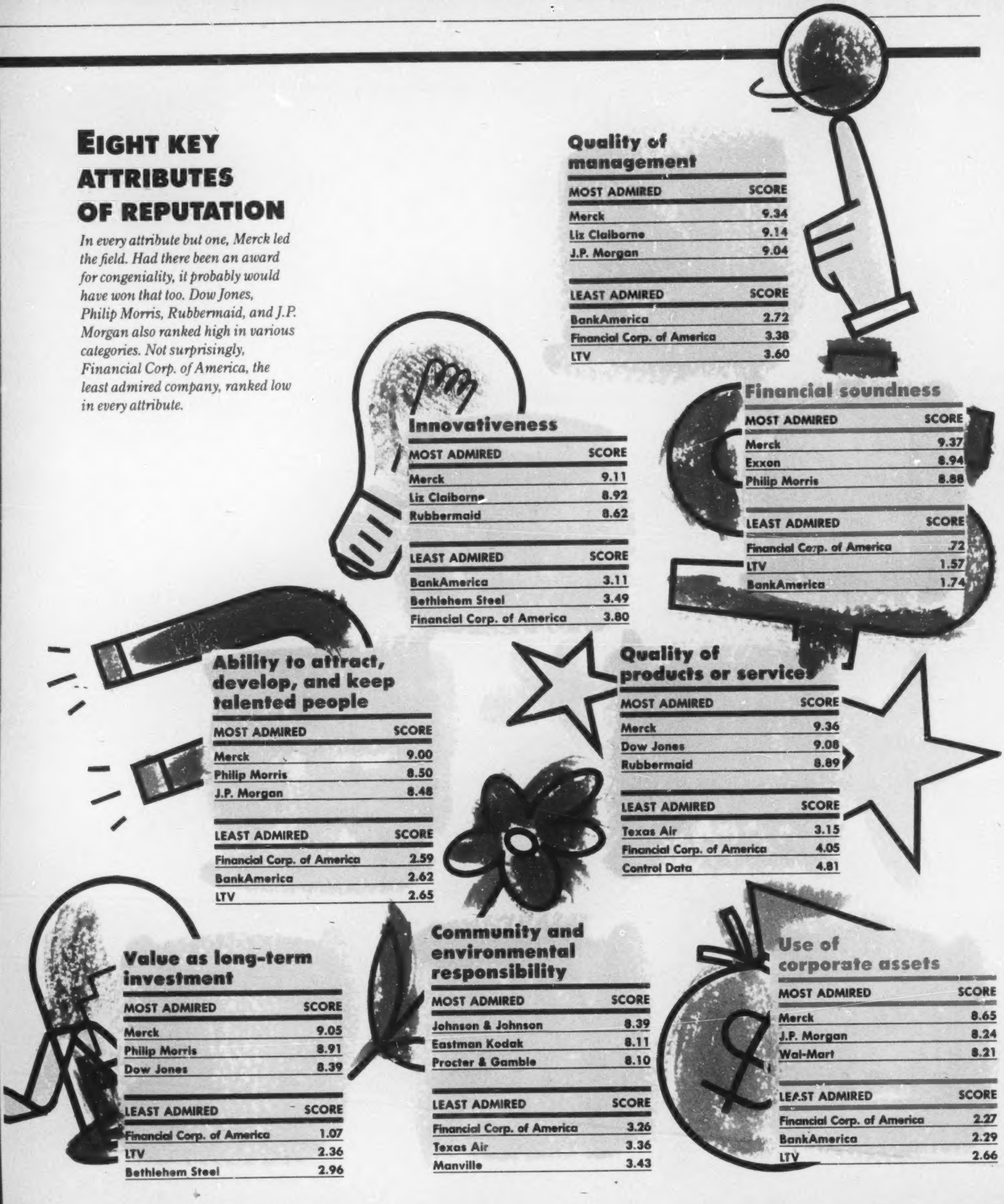
Median returns

Percent change

	Precrash Jan 2–Oct. 14	Post-crash Oct. 14–Dec. 11	Total to date
Most admired	26.2	−20.4	−0.8
Least admired	+31.8	−38.1	−28.8
All companies	+25.7	−26.6	−5.9
S&P 500	+23.8	−22.9	−4.5

EIGHT KEY ATTRIBUTES OF REPUTATION

In every attribute but one, Merck led the field. Had there been an award for congeniality, it probably would have won that too. Dow Jones, Philip Morris, Rubbermaid, and J.P. Morgan also ranked high in various categories. Not surprisingly, Financial Corp. of America, the least admired company, ranked low in every attribute.



Quality of management

MOST ADMIRED	SCORE
Merck	9.34
Liz Claiborne	9.14
J.P. Morgan	9.04

LEAST ADMIRED	SCORE
BankAmerica	2.72
Financial Corp. of America	3.38
LTV	3.60

Innovativeness

MOST ADMIRED	SCORE
Merck	9.11
Liz Claiborne	8.92
Rubbermaid	8.62

LEAST ADMIRED	SCORE
BankAmerica	3.11
Bethlehem Steel	3.49
Financial Corp. of America	3.80

Financial soundness

MOST ADMIRED	SCORE
Merck	9.37
Exxon	8.94
Philip Morris	8.88

LEAST ADMIRED	SCORE
Financial Corp. of America	.72
LTV	1.57
BankAmerica	1.74

Ability to attract, develop, and keep talented people

MOST ADMIRED	SCORE
Merck	9.00
Philip Morris	8.50
J.P. Morgan	8.48

LEAST ADMIRED	SCORE
Financial Corp. of America	2.59
BankAmerica	2.62
LTV	2.65

Quality of products or services

MOST ADMIRED	SCORE
Merck	9.36
Dow Jones	9.08
Rubbermaid	8.89

LEAST ADMIRED	SCORE
Texas Air	3.15
Financial Corp. of America	4.05
Control Data	4.81

Value as long-term investment

MOST ADMIRED	SCORE
Merck	9.05
Philip Morris	8.91
Dow Jones	8.39

LEAST ADMIRED	SCORE
Financial Corp. of America	1.07
LTV	2.36
Bethlehem Steel	2.96

Community and environmental responsibility

MOST ADMIRED	SCORE
Johnson & Johnson	8.39
Eastman Kodak	8.11
Procter & Gamble	8.10

LEAST ADMIRED	SCORE
Financial Corp. of America	3.26
Texas Air	3.36
Manville	3.43

Use of corporate assets

MOST ADMIRED	SCORE
Merck	8.65
J.P. Morgan	8.24
Wal-Mart	8.21

LEAST ADMIRED	SCORE
Financial Corp. of America	2.27
BankAmerica	2.29
LTV	2.66

for all 306 companies surveyed fell 5.9%. By contrast, the median loss for the ten most admired companies came to less than 1%, and the loss for the ten least admired hit a wallet-thinning 28.8%.

Financial Corp. of America was the absolute least admired company, ranking No. 306, and its stock market decline of 78% to December 11 was the largest of the denizens of the deep ten. An avalanche of loan-loss provisions has almost buried shareholders' hopes of seeing the nation's largest savings and loan get back on its feet. As of mid-December the Federal Home Loan Bank Board had been unable to unload this distressed merchandise—Ford Motor appears to be the only willing buyer—and FCA may have to be declared insolvent.

American Motors (No. 305) has been absorbed by Chrysler, and BankAmerica (No. 304) might soon need a wealthy buyer itself. Although Chairman A. W. Clausen promised to turn the company around, he has not yet made good on his word. Even with the ongoing fire sale of subsidiaries and divisions, the bank faces a $915 million loss in 1987.

Thanks to the boom in the steel industry, bankrupt LTV (No. 303) and Bethlehem Steel (No. 302) have begun to breathe again. After five years a slimmer, trimmer Bethlehem is back in the black, and Chairman Walter F. Williams insists his company, whose stock more than doubled in the last year despite the crash, doesn't deserve its bad reputation (see page 39). LTV put three-quarters of operating profits together for the first time since 1983, but has so far failed in its attempt to dump $2.2 billion of unfunded pension liabilities on the government.

THOSE THAT DID BETTER—AND WORSE

Companies whose scores rose the most tended to be in industries finally benefiting from the hard and painful work of restructuring. The ones that fell from grace, however, did so for a variety of reasons, among them: poor management, earnings declines, and shaky balance sheets.

Biggest gains over last year

COMPANY	SCORE	CHANGE	PERCENT
Harsco	7.04	+1.05	17.5
International Flavors & Fragrances	7.30	+.77	11.7
Honeywell	6.22	+.75	13.7
Cooper Tire & Rubber	6.76	+.73	12.1
Amax	5.10	+.69	15.6
USX	5.18	+.68	15.1
Colgate-Palmolive	6.98	+.63	9.9
Merck	9.00	+.62	7.3
Union Carbide	4.77	+.61	14.6
Dow Chemical	7.53	+.60	8.6

Biggest losses over last year

COMPANY	SCORE	CHANGE	PERCENT
Allegis	4.70	−1.74	−27.0
Collins & Aikman	6.33	−1.34	−17.4
Burlington	4.82	−1.24	−20.4
General Motors	5.43	−1.13	−17.2
Hon Industries	6.33	−1.02	−13.8
Financial Corp.	2.62	−.84	−24.2
Wang	4.82	−.77	−13.7
Southland	5.24	−.72	−12.0
Leggett & Platt	7.07	−.65	−8.4
Chemical New York	5.41	−.65	−10.7

As a result of Chief Executive Frank Lorenzo's voracious acquiring, Texas Air (No. 301) grew large enough to be included in the survey—and promptly crash-landed in the bottom ten. The parent of Eastern and Continental airlines, both criticized for late arrivals, dirty planes, and lost baggage, Texas Air ranks worst of all 306 companies in quality of products and service.

Though recovering financially, Manville (No. 300) is still remembered as the insensitive maker of asbestos. With rising aluminum prices and corporate cost cutting, Kaiser Aluminum & Chemical (No. 299) earned its first quarterly profits in two years but is saddled with huge debts. Control Data's No. 298 ranking does not yet reflect the company's strenuous efforts to sell assets, realign management, and secure long-term financing. At Coleco Industries (No. 297) the company's good repute has vanished like the fickle young customers who cooled on Cabbage Patch dolls. Coleco's attempts to broaden its base to include board games such as Scrabble and Trivial Pursuit have not paid off yet, and the toymaker lost money in two quarters.

Where a corporation ranks on the survey depends to some extent on how well its industry is perceived. An important court ruling that tobacco companies could not be sued on the grounds that the warning label on the package is inadequate improved their already rosy outlook and blew the scores of all four competitors smoke-ring high. Writes a respondent: "These companies are among the real money machines of America." Several corporations whose reputations improved most during the year—Amax, USX, Dow Chemical, and Union Carbide among them—are in industries benefiting from major restructuring, the dive of the dollar, and rising demand.

The reputation of Allegis, whose new name does not quite conceal its old identity as the loss tossed United Airlines, fell further than any other company—from No. 188 to No. 290. Granted, the airline business has been dismal, but Allegis also has itself to blame. Last spring the board finally forced the resignation of Chief Executive Richard J. Ferris, who it felt was not moving fast enough to turn the company around.

Once sullied, a good reputation is hard to win back. One of Shakespeare's characters said it best: "He that filches from me my good name robs me of that which not enriches him, and makes me poor indeed." The speaker? The villain Iago.

LET'S HEAR IT FROM THE WINNER— AND FROM A LOSER

THINK YOU had a good year? Merck just wrapped up 12 months in which sales are projected to increase over 20% to $5 billion and earnings more than 30% to $900 million. Behind those numbers are some new wonder drugs the company launched in the past two years, including Mevacor, which lowers cholesterol levels in the blood; Vasotec, a treatment for hypertension and congestive heart failure; and Primaxin and Noroxin, new antibiotics. So what's next? FORTUNE's Bill Saporito put that question to the ever anxious Dr. P. Roy Vagelos, the company's chairman, when he caught up with him at the Merck Sharp & Dohme division in West Point, Pennsylvania.

You've been No. 1 for two years in a row. How long can you keep it up?

I think Merck is a very competitive company, and I push our people to be competitive. We would like to be No. 1 forever. We had a hell of a year in 1987—unbelievable. Our job is to deliver that in 1988.

HANS NEIMAN

Vagelos asks: What have you done for me lately?

What's so great about being No. 1?

Last year it was a wonderful compliment. It did great things for the morale of the company and for our recruiting, because Merck is not a familiar corporate name. Now we are recognized on campuses, so our recruiting results have been just super. We have superstars hanging from the ceiling in most areas, and I'll be happy only when we have them hanging from every area of our organization.

What will you tell the troops about your rating in this survey?

I'll tell them it probably wasn't an accident last year.

So what do you do after that?

I still am anxious about what the next thing is going to be. The only way to alleviate my anxiety is to be busy on what I think is important. About two months after filing with the FDA for Mevacor, we filed our next new drug application for Zocor, another agent for reducing cholesterol, which, of course, is the strategy. While other people are talking about all the drugs they are making, we're in there with a second one. I like that.

Sounds like a religion.

It's not a religion at all. It's understanding that the most important thing you can contribute as a human being is improving the lives of millions of people. We do that every year, introducing drugs and vaccines that will change the course of diseases or prevent diseases. And what could be better than that?

Are you afraid some of your folks will coast?

The trick is not doing it one year or two years. The trick is to take advantage of the fact that we have numerous new products doing well to lay the foundation for long-term growth of the corporation. Pharmaceuticals is a very fragmented market, and a company that can put everything together for a series of years should be able to gather up a much larger and more significant share of the market. There are plenty of diseases left.

Pardon the expression, but how do you keep that fire in the belly?

I'll tell you how we do it. We have scientists, and we have objectives. The objectives are to do something about a disease, and so we assign that task to people who are willing to take it on. It's a very high-risk business. We recognize that most of the research we do and most of the drugs we come up with will fail. But we challenge people to get into new fields, and we tell them that the objective is to make a drug, not just to discover facts and publish in trade journals.

And once they do make a drug?

The fact that we have a new antibiotic like Primaxin is terrific for the people who are working on antibiotics. But what about the guys who are working on a pulmonary disease? You don't relax, because you recognize that triumph in one field only helps people afflicted by that particular ailment. I make it very clear that making a new drug for glaucoma is not helping the people working on heart disease.

Are sales and earnings going to slow down next year?

Among our 100-plus prescription drugs, in 1986 we had eight that each produced $100 million a year in sales; in 1987 we had 13 that did $100 million each. Many of our new drugs are just beginning their growth cycle. Mevacor was just introduced. Vasotec, Pepcid, for peptic ulcers, and Noroxin are relatively new, and our recombinant hepatitis B vaccine just went on the market.

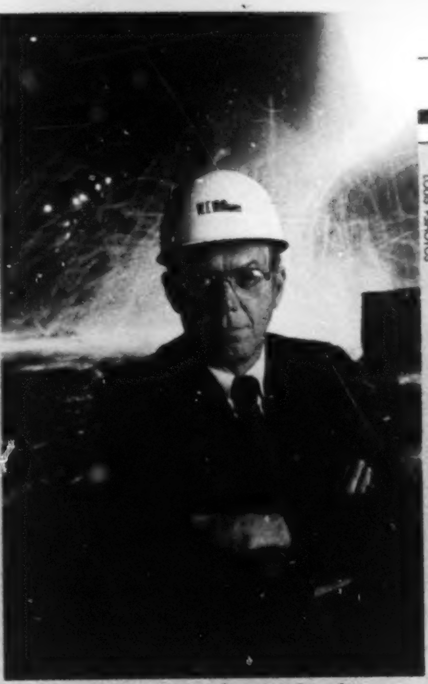
What's on the horizon?

We are beginning clinical trials on a drug that will shrink the prostate gland without debilitating side effects. It may fail, either because it's not effective enough or because it is unsafe. But if it should succeed, I think we would have something just as important as Tagamet [SmithKline Beckman's phenomenally successful ulcer drug]. The incidence of an enlarged prostate in older men is more common than the incidence of ulcers.

Do you enjoy the same high reputation internationally as in the U.S.?

We are No. 1 in market share in the United States, Australia, and Canada. We are very strong in most major markets, but we would like to be in the top two or three everywhere in the world, and we are not yet.

HOW DOES IT FEEL to have led your company through a huge financial turnaround and still be stuck with one of the worst reputations in American industry? Put yourself in the shoes of Walter F. Williams, chief executive of Bethlehem Steel. Bethlehem ranks 302nd out of 306 companies in the Corporate Reputations Survey, and respondents believe the steelmaker has one foot in a blast furnace and the other on a banana peel. For the five years ended in 1986, it lost $2 billion, a hemorrhage that would be fatal to most companies. Then, in 1987, the company finally started producing profits and has enough orders on hand to remain profitable through 1988's first quarter. Williams told Bill Saporito how he felt about Bessie's unenviable reputation.



LOUIS PSIHOYOS

Williams gets back to basics—and profits.

Does Bethlehem deserve its ranking in the survey?

I don't think the steel industry has received anywhere near the credit it deserves for the improvements it has made in the past two years, although the financial community is starting to recognize the strides we've taken. Bethlehem has done as much as anyone in the industry to reduce costs, improve productivity, and make needed capital expenditures. Yet we still can't change the perception that we are a poorly run company.

What kind of things have you done?

We have reduced our operating costs per ton of basic steel products by over $130 a ton to about $400, and we are still cutting costs. In the past five years our productivity has almost doubled in tons per plant employee.

The company is viewed as mired in outdated production techniques, and it ranks only 304th for innovativeness.

You've got to wonder what people think innovation means. We have spent over $2 billion in modernization since 1981 and put in two new, big continuous casters so that 80% of our flat-rolled steel is continuously cast, up from 23% in 1982. Now to me that's innovation. I might point out that in the late Seventies we had a list of a dozen major projects that we knew we had to complete to be competitive in the 1990s. They included such things as the new blast furnaces at Sparrows Point in Baltimore; a caster for the rail mill at Steelton, Pennsylvania; the two big slab casters at Sparrows Point and Burns Harbor; and the modernization of a structural mill at Bethlehem. We have accomplished all of those in spite of our difficulties.

Is there any money left?

We have well over $500 million in cash and securities, and we have just picked up another $186 million from a public stock offering. We also have some $200 million in cash tied up in collateral, so if you add it all together, at the end of November we had close to a billion dollars in the till.

So you've satisfied all the critics?

Well, put it this way: The perception among the analysts is that we should be more profitable. We will have both an operating profit and a net profit in the fourth quarter that, with the first three quarters, will make us profitable for 1987. Look at the first three quarters of 1987 vs. the first three quarters of 1986; the income from steel operations alone has improved by some $230 million.

What about 1988?

The underlying economy, despite the stock market crash, is still very solid. There is a lot of pent-up demand from our machinery and construction customers. There may be a slight fall in automotive demand, but it won't be significant, so there's no reason we shouldn't have a pretty good year.

Have the employees recognized the company's improving health?

What we are doing is working. There's nothing that does as much good for a company as for its people to see the results of their efforts. We have a much smaller company, with half the employees we had six years ago. Our management and supervisory groups are much leaner, and we have been trying to push responsibility and authority down as far as possible—which I suppose everyone else is trying to do too. Our employees understand our problems, and they think we are trying to do the right things to enhance the quality of our steel. I hear quality mentioned all the time.

Even the union folks feel this way?

I have to give a lot of credit to our steel workers. They have entered into two concessionary contracts, one in 1983 and one in 1986. Our shutdowns and cutbacks hurt a lot of people, but our production workers have responded well to many of our offers for retraining, to implementing Statistical Process Control, and to our quality programs.

Is managing a company that's had serious problems very different from managing a profitable one?

Well, I could say this: Up until this year, let's face it, we were managing for survival. Our focus was on liquidity and cash flow, and that certainly was a difficult period in which to manage. We are still concerned about making sure we have adequate liquidity, but this year is a pleasant change. We are managing for profit, and I think that is a big difference. We still have further restructuring to do to improve our liquidity, but the focus now is on improving our profit.

You mentioned that the financial community has begun to recognize your hard work. How far along are you in changing the perception of Bessie?

Not only Bethlehem but the whole steel industry has to communicate our story better to the public and to our employees: that we are getting our act straightened out and that we have come a long way. We can't say we've solved all our problems because I'm not so sure all the problems of the American industrial base have been solved at this point, and we're part of that. We have an educational program to do to let people know how we have improved our quality. I believe our steel in our market is now as good as, or superior to, any in the world.

HOW COMPANIES RANK IN 33 INDUSTRIES

Industry groups are based on U.S. Office of Management and Budget categories. Companies are assigned to industries according to the business that contributed most to 1986 sales.

Aerospace

Boeing, still first in its industry, fell out of the top ten this year; scores of all the aerospace companies sank.

RANK	LAST YEAR	COMPANY	SCORE
1	1	Boeing	7.70
2	2	Martin Marietta	6.99
3	3	Rockwell International	6.76
4	4	Lockheed	6.61
5	6	McDonnell Douglas	6.54
6	7	United Technologies	6.27
7	8	General Dynamics	6.25
8	5	Northrop	6.19
9	9	Textron	5.77
10	10	Allied-Signal	5.71

Apparel

Liz Claiborne sports the fanciest score, while Farley/Northwest fell when it switched industries.

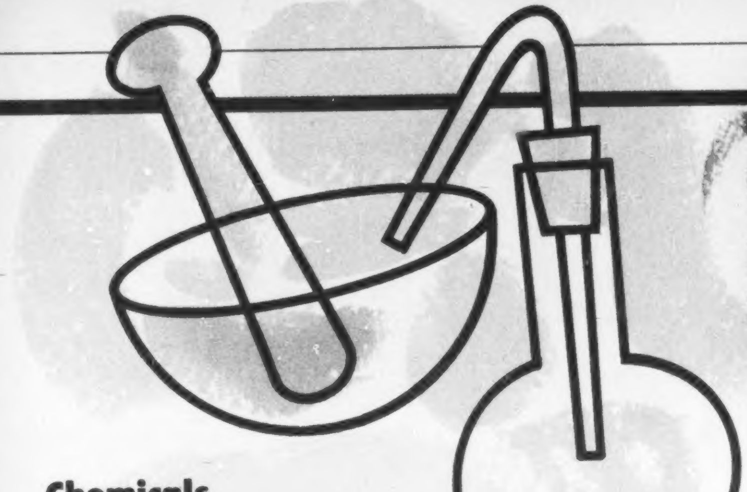
RANK	LAST YEAR	COMPANY	SCORE
1	1	Liz Claiborne	8.14
2	2	VF	7.48
3	3	Hartmarx	6.27
4	5	Kellwood	6.09
5	4	Interco	6.05
6	6	Oxford Industries	5.68
7	7	Phillips-Van Heusen	5.29
8	–	Leslie Fay[1]	5.28
9	–	Warnaco[1]	5.05
10	–	Farley/Northwest Ind.[2]	4.96

Beverages

Pepsi dethroned Coke in the ongoing competition of the colas, while Coors traded places with Seagram.

RANK	LAST YEAR	COMPANY	SCORE
1	2	PepsiCo	7.82
2	3	Anheuser-Busch	7.53
3	1	Coca-Cola	7.47
4	4	General Cinema	5.79
5	6	Adolph Coors	5.76
6	5	Joseph E. Seagram & Sons	5.69
7	7	Brown-Forman	5.60
8	8	G. Heileman Brewing	5.00

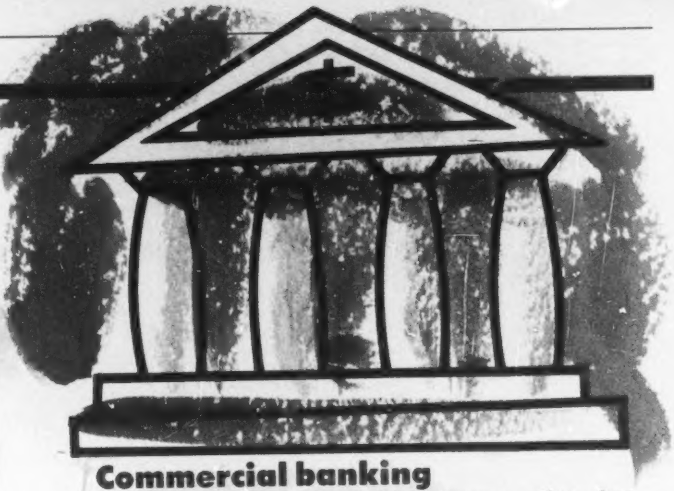
[1] Not ranked last year.
[2] Name changed to Fruit of the Loom; was No. 5 in metals last year.



Chemicals

Du Pont was tops in six categories, but Dow ranked highest in the industry for its quality of management.

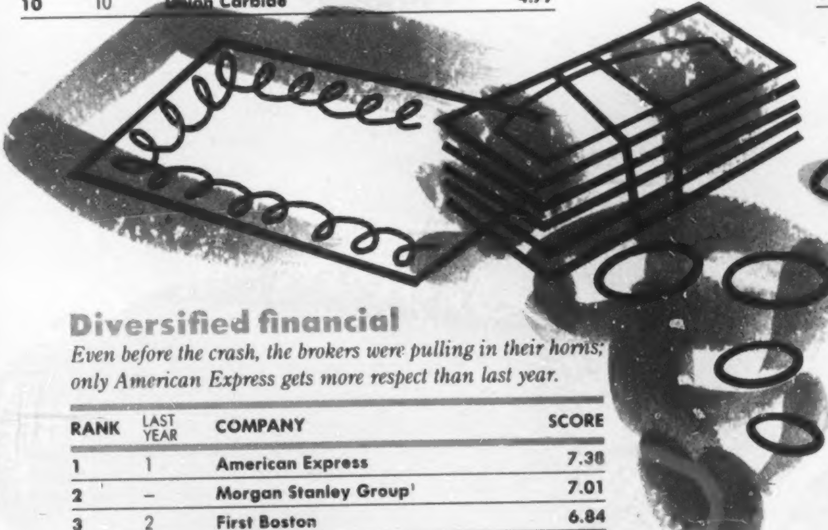
RANK	LAST YEAR	COMPANY	SCORE
1	1	**Du Pont**	7.73
2	2	**Dow Chemical**	7.53
3	–	**Bayer USA**[1]	6.46
4	6	**American Cyanamid**	6.45
5	3	**Monsanto**	6.38
6	7	**BASF**	6.28
7	5	**Hoechst Celanese**[2]	6.05
8	8	**FMC**	5.41
9	9	**W.R. Grace**	5.12
10	10	**Union Carbide**	4.77



Commercial banking

J.P. Morgan rules the roost in this industry at a time when most banks are socking away reserves against bad LDC loans.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**J.P. Morgan**	8.03
2	3	**Bankers Trust New York**	7.08
3	2	**Citicorp**	7.06
4	–	**Wells Fargo & Co.**[1]	6.92
5	4	**Security Pacific**	6.76
6	5	**First Interstate Bancorp**	5.91
7	7	**Chase Manhattan**	5.48
8	6	**Chemical New York**	5.41
9	8	**Manufacturers Hanover**	4.68
10	10	**BankAmerica**	3.21



Diversified financial

Even before the crash, the brokers were pulling in their horns; only American Express gets more respect than last year.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**American Express**	7.38
2	–	**Morgan Stanley Group**[1]	7.01
3	2	**First Boston**	6.84
4	–	**Salomon**[3]	6.69
5	4	**Bear Stearns**	6.46
6	6	**Aetna Life & Casualty**	6.21
7	7	**Travelers**	6.05
8	5	**Merrill Lynch**	5.94
9	9	**Cigna**	5.73
10	8	**Federal National Mortgage Ass'n.**	5.50

Diversified service

When Primerica was American Can, it was fifth in metal products; after a name and category change, it is No. 2.

RANK	LAST YEAR	COMPANY	SCORE
1	–	**Electronic Data Systems**[1]	7.09
2	–	**Primerica**[4]	6.75
3	4	**McKesson**	6.48
4	2	**Super Valu Stores**	6.40
5	–	**Alco Standard**[1]	6.03
6	5	**Fleming**	5.93
7	3	**Hospital Corp. of America**	5.77
8	10	**CBS**	5.68
9	9	**Fluor**	5.48
10	–	**National Intergroup**[1]	5.32

[1] Not ranked last year.

[2] American Hoechst (not ranked last year) merged with Celanese (No. 5 last year).

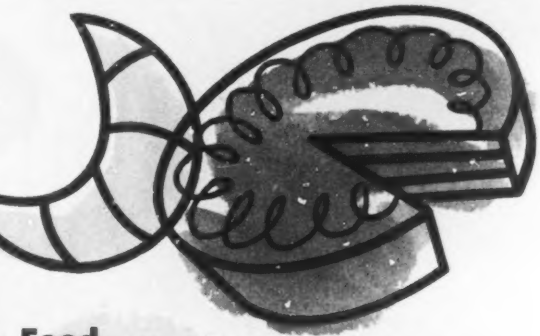
[3] No. 1 in diversified service last year.

[4] No. 5 in metal products last year; it used to be American Can.

Electronics, appliances

AT&T is the company to watch as it attempts the transition from regulated utility to competitive electronics manufacturer.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**General Electric**	7.77
2	2	**Emerson Electric**	7.06
3	4	**AT&T**	6.93
4	3	**Motorola**	6.89
5	6	**Raytheon**	6.64
6	8	**Texas Instruments**	6.52
7	5	**TRW**	6.48
8	7	**Westinghouse Electric**	6.41
9	–	**Honeywell**[2]	6.22
10	10	**ITT**	5.46



Food

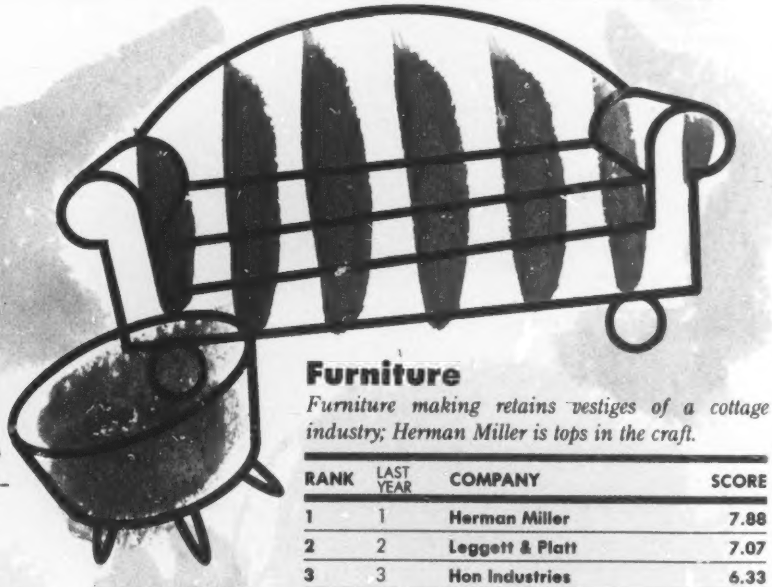
Oxy Pete has become Oxy Meat, a food company, because most of its revenues now come from its IBP Beef division.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**Sara Lee**	7.50
2	3	**General Mills**	7.30
3	2	**Pillsbury**[4]	6.82
4	6	**ConAgra**[4]	6.82
5	5	**Kraft**[3,4]	6.81
6	4	**Ralston Purina**[4]	6.81
7	7	**Borden**	6.59
8	8	**Archer Daniels Midland**	6.19
9	9	**CPC International**	6.06
10	–	**Occidental Petroleum**[5]	5.30

Forest products

These companies include producers of lumber and producers of diapers, but Kimberly-Clark is again at the top of the tree.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**Kimberly-Clark**	7.40
2	3	**Scott Paper**	6.73
3	–	**Union Camp**[1]	6.69
4	2	**James River Corp. of Virginia**	6.48
5	4	**Mead**	6.35
6	5	**Georgia-Pacific**	6.24
7	8	**Weyerhaeuser**	6.17
8	7	**Boise Cascade**	6.06
9	9	**Champion International**	5.74
10	10	**International Paper**	5.29

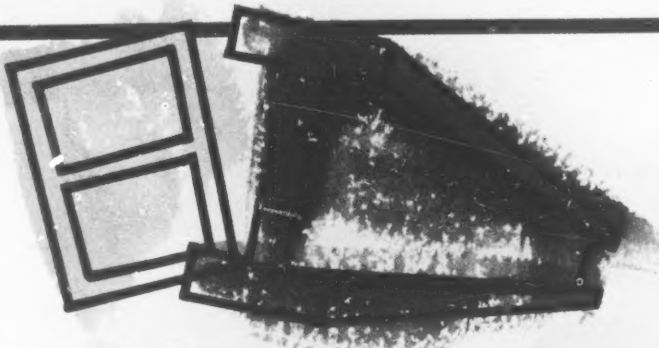


Furniture

Furniture making retains vestiges of a cottage industry; Herman Miller is tops in the craft.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**Herman Miller**	7.88
2	2	**Leggett & Platt**	7.07
3	3	**Hon Industries**	6.33
4	–	**Basset Furniture**[1]	6.13
5	4	**Mohasco**	5.95

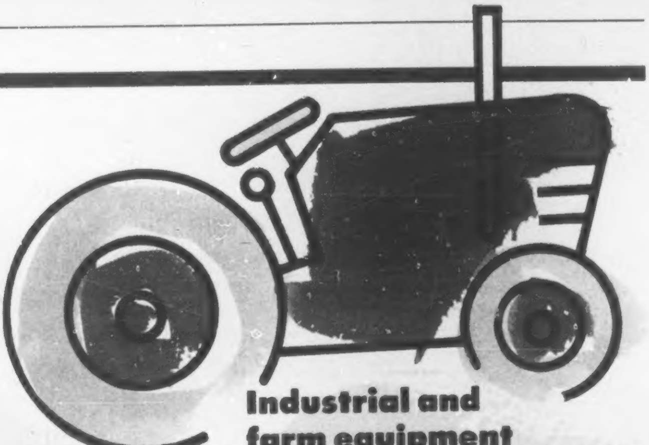
[1] Not ranked last year.
[2] No. 8 in computers, office equipment last year.
[3] Formerly Dart & Kraft.
[4] Tie.
[5] No. 7 in mining, crude-oil production last year.



Glass, building materials

Many companies have been recapitalized, taken over, or taken private, but Corning remains No. 1.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**Corning Glass Works**	7.24
2	2	**PPG Industries**	7.09
3	4	**USG**	6.27
4	6	**Owens-Corning Fiberglas**	6.12
5	3	**Owens-Illinois**	6.09
6	7	**Norton**	6.05
7	8	**Jim Walter**	5.92
8	–	**Certainteed**[1]	5.78
9	9	**National Gypsum**	5.69
10	10	**Manville**	4.14



Industrial and farm equipment

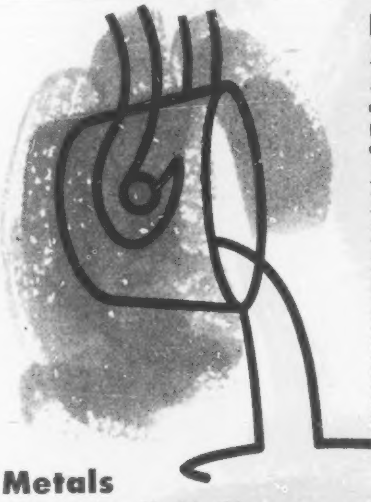
The rankings changed very little year to year for these companies, but their average scores declined.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**Cummins Engine**	6.76
2	2	**Teledyne**	6.69
3	3	**Black & Decker**	6.62
4	4	**Caterpillar**	6.59
5	–	**Brunswick**[1]	6.35
6	5	**Deere**	6.33
7	7	**Ingersoll-Rand**	6.06
8	6	**American Standard**[3]	5.77
9	9	**Dresser Industries**[3]	5.77
10	10	**Baker Hughes**[2]	5.76

Life insurance

Northwestern Mutual leads in management and financial strength, but Prudential gets the palm for innovation.

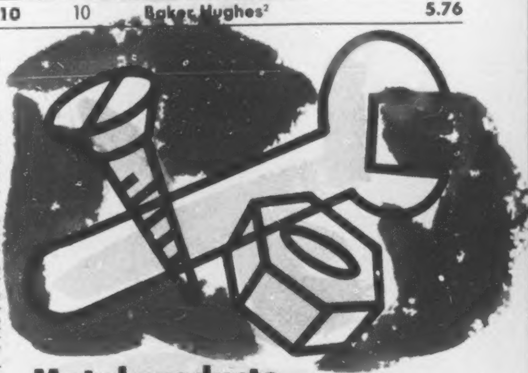
RANK	LAST YEAR	COMPANY	SCORE
1	1	**Northwestern Mutual Life**	7.03
2	2	**Prudential**	6.61
3	4	**Aetna Life**	6.44
4	6	**Metropolitan Life**	6.36
5	7	**Connecticut General Life**	6.15
6	5	**Travelers**	6.12
7	9	**John Hancock Mutual**	5.97
8	10	**Equitable Life Assurance**	5.89
9	3	**Teachers Insurance & Annuity**	5.85
10	8	**New York Life**	5.83



Metals

Alcoa has been No. 1 in this group every year since 1983; now many of these companies are benefiting from restructuring.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**Alcoa**	6.46
2	2	**Reynolds Metals**	6.42
3	–	**Alumax**[1]	5.69
4	6	**Inland Steel**	5.32
5	4	**Penn Central**	5.31
6	–	**Cyclops**[1]	4.84
7	8	**Armco**	4.74
8	7	**Kaiser Aluminum & Chemical**	4.19
9	9	**Bethlehem Steel**	3.69
10	10	**LTV**	3.24



Metal products

Illinois Tool Works displaced Gillette, whose scores dropped in management and financial soundness.

RANK	LAST YEAR	COMPANY	SCORE
1	–	**Illinois Tool Works**[1]	7.31
2	3	**Masco**	7.21
3	2	**Stanley Works**	6.99
4	1	**Gillette**	6.73
5	–	**Ball**[1]	6.62
6	7	**Crown Cork & Seal**	6.59
7	6	**Emhart**	6.37
8	10	**Triangle Industries**	5.96
9	–	**Combustion Engineering**[4]	5.95
10	–	**Household Manufacturing**[5]	5.89

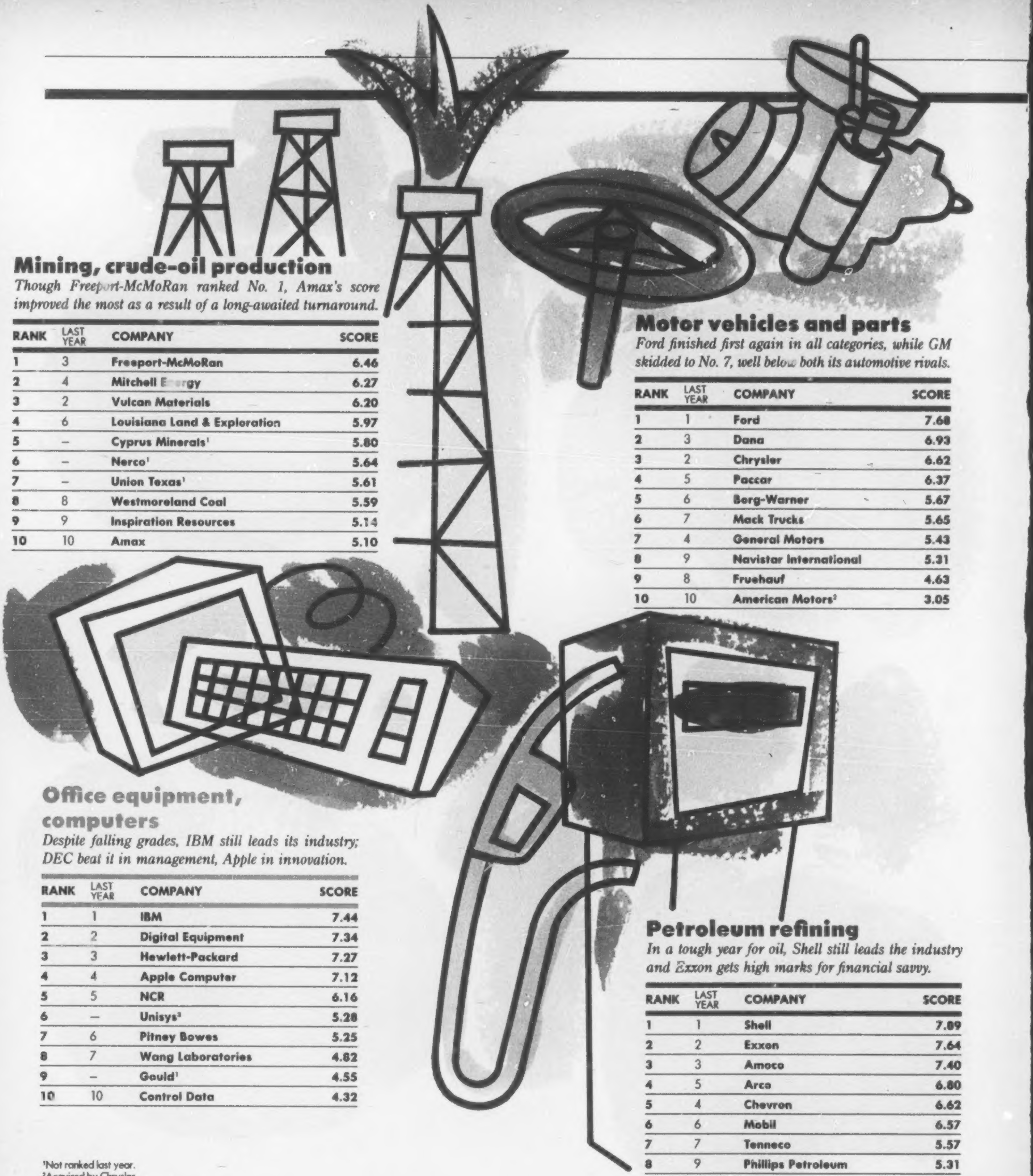
[1] Not ranked last year.

[2] Baker International (No. 10 last year in industrial and farm equipment) merged with Hughes Tool.

[3] Tie.

[4] No. 8 in industrial and farm equipment last year.

[5] Wholly owned by Household International, No. 9 in retailing last year.



Mining, crude-oil production

Though Freeport-McMoRan ranked No. 1, Amax's score improved the most as a result of a long-awaited turnaround.

RANK	LAST YEAR	COMPANY	SCORE
1	3	**Freeport-McMoRan**	**6.46**
2	4	**Mitchell Energy**	**6.27**
3	2	**Vulcan Materials**	**6.20**
4	6	**Louisiana Land & Exploration**	**5.97**
5	–	**Cyprus Minerals**[1]	**5.80**
6	–	**Nerco**[1]	**5.64**
7	–	**Union Texas**[1]	**5.61**
8	8	**Westmoreland Coal**	**5.59**
9	9	**Inspiration Resources**	**5.14**
10	10	**Amax**	**5.10**

Motor vehicles and parts

Ford finished first again in all categories, while GM skidded to No. 7, well below both its automotive rivals.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**Ford**	**7.68**
2	3	**Dana**	**6.93**
3	2	**Chrysler**	**6.62**
4	5	**Paccar**	**6.37**
5	6	**Borg-Warner**	**5.67**
6	7	**Mack Trucks**	**5.65**
7	4	**General Motors**	**5.43**
8	9	**Navistar International**	**5.31**
9	8	**Fruehauf**	**4.63**
10	10	**American Motors**[2]	**3.05**

Office equipment, computers

Despite falling grades, IBM still leads its industry; DEC beat it in management, Apple in innovation.

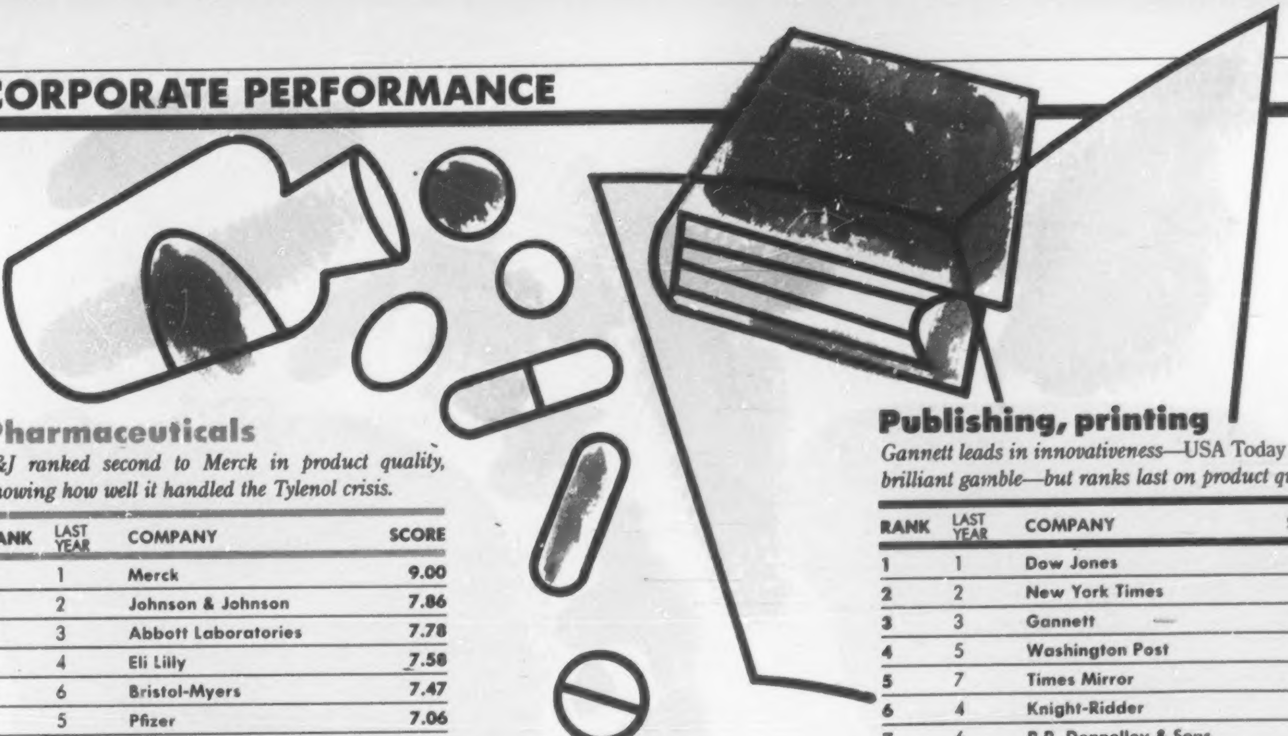
RANK	LAST YEAR	COMPANY	SCORE
1	1	**IBM**	**7.44**
2	2	**Digital Equipment**	**7.34**
3	3	**Hewlett-Packard**	**7.27**
4	4	**Apple Computer**	**7.12**
5	5	**NCR**	**6.16**
6	—	**Unisys**[3]	**5.28**
7	6	**Pitney Bowes**	**5.25**
8	7	**Wang Laboratories**	**4.82**
9	–	**Gould**[1]	**4.55**
10	10	**Control Data**	**4.32**

Petroleum refining

In a tough year for oil, Shell still leads the industry and Exxon gets high marks for financial savvy.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**Shell**	**7.89**
2	2	**Exxon**	**7.64**
3	3	**Amoco**	**7.40**
4	5	**Arco**	**6.80**
5	4	**Chevron**	**6.62**
6	6	**Mobil**	**6.57**
7	7	**Tenneco**	**5.57**
8	9	**Phillips Petroleum**	**5.31**
9	10	**USX**	**5.18**
10	8	**Texaco**	**4.75**

[1] Not ranked last year.
[2] Acquired by Chrysler.
[3] Company formed by merger of Sperry and Burroughs (No. 9 last year).



Pharmaceuticals

J&J ranked second to Merck in product quality, showing how well it handled the Tylenol crisis.

RANK	LAST YEAR	COMPANY	SCORE
1	1	Merck	9.00
2	2	Johnson & Johnson	7.86
3	3	Abbott Laboratories	7.78
4	4	Eli Lilly	7.58
5	6	Bristol-Myers	7.47
6	5	Pfizer	7.06
7	7	American Home Products	6.36
8	9	Baxter Travenol	6.34
9	10	Warner-Lambert	6.29
10	8	SmithKline Beckman	6.06

Publishing, printing

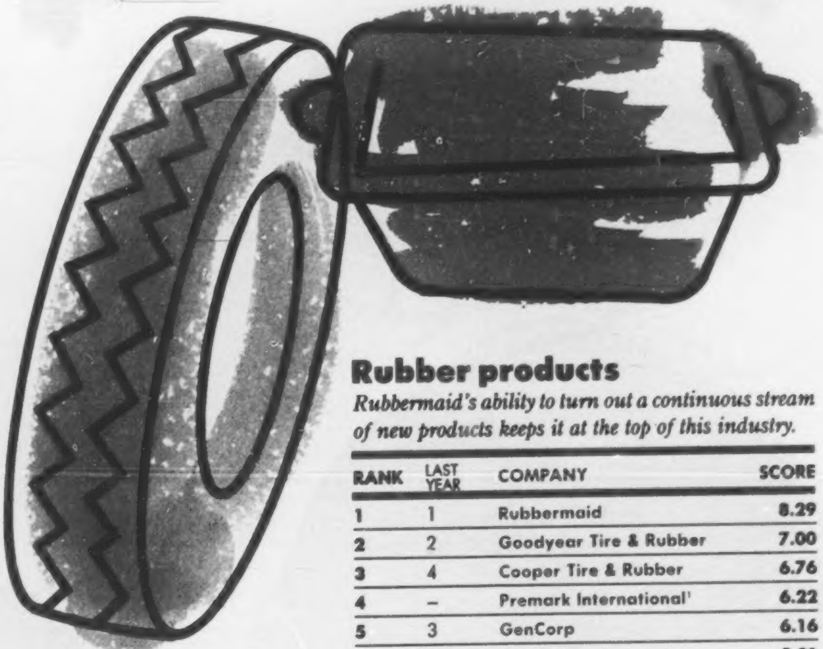
*Gannett leads in innovativeness—*USA Today *was a brilliant gamble—but ranks last on product quality.*

RANK	LAST YEAR	COMPANY	SCORE
1	1	Dow Jones	8.24
2	2	New York Times	7.74
3	3	Gannett	7.29
4	5	Washington Post	7.22
5	7	Times Mirror	7.12
6	4	Knight-Ridder	7.04
7	6	R.R. Donnelley & Sons	7.03
8	8	Time Inc.	6.86
9	10	Tribune	6.70
10	9	McGraw-Hill	6.36

Retailing

Neither Wal-Mart nor May was ranked last year, but they're in fashion now. Sears has taken a tumble.

RANK	LAST YEAR	COMPANY	SCORE
1	–	Wal-Mart Stores[1]	7.90
2	–	May Department Stores[1]	6.38
3	4	J.C. Penney	6.33
4	3	Kroger	5.97
5	6	K mart	5.89
6	2	Sears Roebuck	5.85
7	8	American Stores	5.65
8	5	Federated Dept. Stores	5.61
9	7	Southland	5.24
10	–	Safeway Stores[1]	4.75

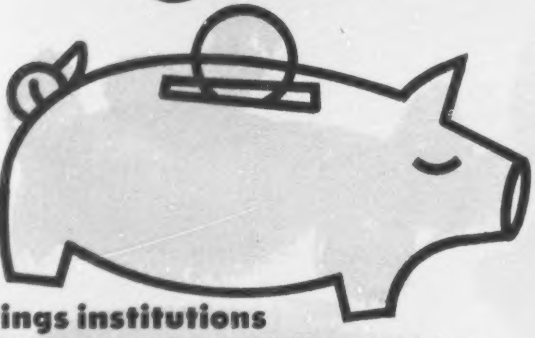


Rubber products

Rubbermaid's ability to turn out a continuous stream of new products keeps it at the top of this industry.

RANK	LAST YEAR	COMPANY	SCORE
1	1	Rubbermaid	8.29
2	2	Goodyear Tire & Rubber	7.00
3	4	Cooper Tire & Rubber	6.76
4	–	Premark International[1]	6.22
5	3	GenCorp	6.16
6	6	Armtek[4]	5.81
7	7	Firestone Tire & Rubber	5.66
8	8	B.F. Goodrich	5.64
9	9	Dorsey[2]	5.42
10	10	Dayco[3]	5.10

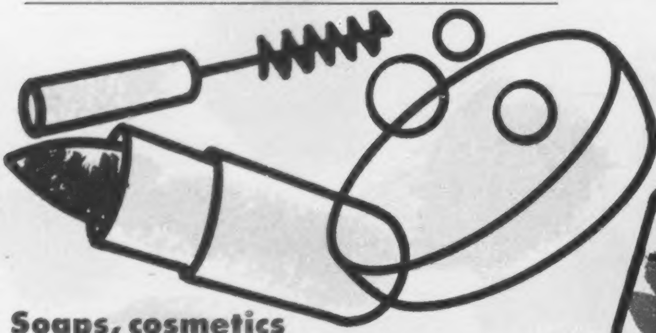
[1] Not ranked last year.
[2] Name changed to Constar.
[3] Name changed to DAY International.
[4] Name changed from Armstrong Rubber.



Savings institutions

Though the industry seems perennially on the brink of disaster, Great Western maintains its leadership.

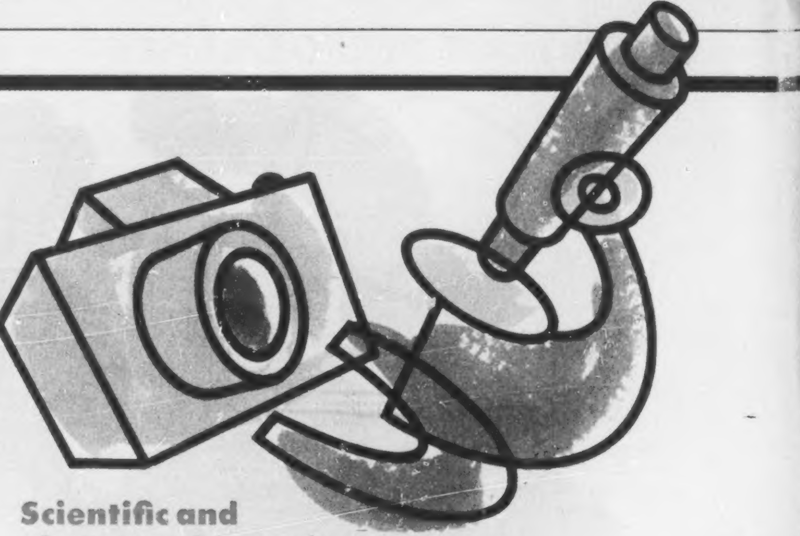
RANK	LAST YEAR	COMPANY	SCORE
1	1	Great Western Financial	7.59
2	2	H.F. Ahmanson	7.14
3	4	Golden West Financial	6.84
4	3	Home Federal Savings & Loan	6.48
5	–	Great American First Savings[1]	6.14
6	5	Calfed	5.97
7	6	Glenfed	5.80
8	8	Meritor Financial Group	4.56
9	9	Gibraltar Financial	4.36
10	10	Financial Corp. of America	2.62



Soaps, cosmetics

P&G cleaned up in every category. IFF had the second-highest point gain, up 12%, of all the companies in the survey.

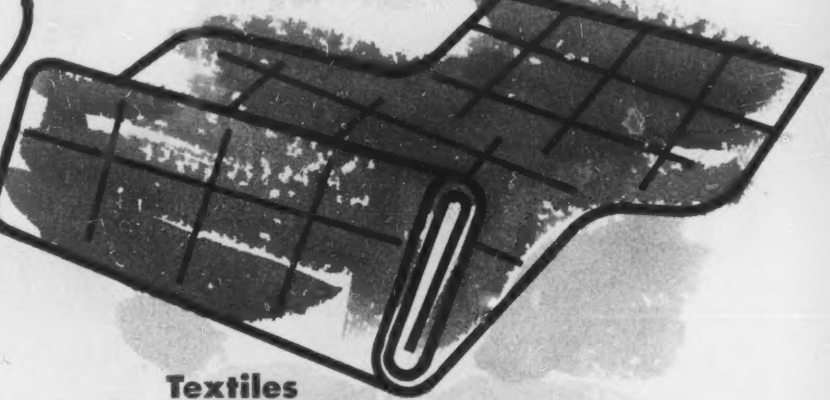
RANK	LAST YEAR	COMPANY	SCORE
1	1	Procter & Gamble	8.15
2	4	International Flavors & Fragrances	7.30
3	5	Colgate-Palmolive	6.98
4	2	Lever Brothers	6.97
5	3	Clorox	6.70
6	6	Chesebrough-Pond's	6.44
7	7	Avon Products	6.24
8	8	Ecolab[2]	5.92
9	–	Alberto-Culver[1]	5.53
10	9	Revlon Group	5.42



Scientific and photographic equipment

Xerox and Polaroid, companies that created industries and then seemed to lose their way, are again gaining respect.

RANK	LAST YEAR	COMPANY	SCORE
1	1	3M	8.10
2	2	Eastman Kodak	7.32
3	6	Xerox	6.66
4	7	Polaroid	6.53
5	3	EG&G	6.44
6	5	Becton Dickinson	6.27
7	4	Perkin-Elmer	6.17
8	8	Tektronix	6.14
9	10	Lear Siegler	5.55
10	9	General Signal	5.49



Textiles

Armstrong World Industries rose two notches, while Collins & Aikman, the former leader, tumbled to fifth place.

RANK	LAST YEAR	COMPANY	SCORE
1	3	Armstrong World Industries	7.27
2	2	West Point—Pepperell	7.09
3	4	Springs Industries	7.06
4	5	Shaw Industries	6.78
5	1	Collins & Aikman	6.33
6	7	J.P. Stevens	6.24
7	6	Fieldcrest Cannon	6.21
8	9	DWG	5.24
9	8	Burlington Industries	4.82
10	10	United Merchants & Mfrs.	4.68

[1] Not ranked last year.
[2] Name changed from Economics Laboratory.

Tobacco

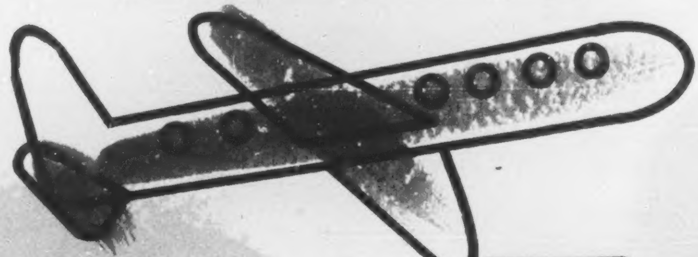
Philip Morris changed places with RJR Nabisco, and both are admired for diversifying away from smokes.

RANK	LAST YEAR	COMPANY	SCORE
1	2	**Philip Morris**	8.07
2	1	**RJR Nabisco**	7.90
3	3	**United States Tobacco**	6.63
4	4	**American Brands**	6.45

Toys, sporting goods

There just hasn't been a blockbuster toy this year, but even so Hasbro remains king of the sandbox.

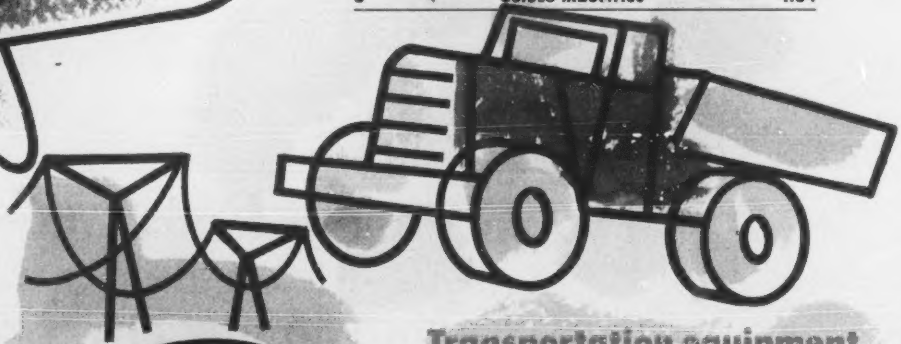
RANK	LAST YEAR	COMPANY	SCORE
1	1	**Hasbro**	7.05
2	–	**Kenner Parker Toys**[1]	5.95
3	2	**Mattel**	5.41
4	3	**Minstar**	5.06
5	4	**Coleco Industries**	4.34



Transportation

UPS delivers the goods again. Allegis and Texas Air got bad marks on management and service.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**United Parcel Service**	7.30
2	2	**AMR**	6.84
3	3	**Delta Air Lines**	6.42
4	4	**Norfolk Southern**	6.34
5	–	**Union Pacific**[2]	6.24
6	7	**Burlington Northern**	5.87
7	6	**CSX**	5.70
8	8	**Santa Fe Southern Pacific**	5.04
9	5	**Allegis**[3]	4.70
10	–	**Texas Air**[1]	4.00



Transportation equipment

Fleetwood leads in financial soundness and innovativeness while Harsco is tops as an investment.

RANK	LAST YEAR	COMPANY	SCORE
1	1	**Fleetwood Enterprises**	7.07
2	–	**Harsco**[4]	7.04
3	–	**Trinity Industries**[1]	6.94
4	–	**International Controls**[1]	5.67

Utilities

So far the Baby Bells have done better on their own than Ma has. Bell Atlantic rates high in management and service.

RANK	LAST YEAR	COMPANY	SCORE
1	2	**Bell Atlantic**	7.46
2	1	**BellSouth**	7.45
3	3	**Ameritech**	7.33
4	5	**Nynex**	7.17
5	4	**Pacific Telesis Group**	6.96
6	6	**US West**	6.86
7	7	**Southwestern Bell**	6.80
8	8	**Pacific Gas & Electric**	6.42
9	9	**Southern**	6.23
10	10	**GTE**	6.07

[1] Not ranked last year.
[2] No. 6 in diversified service last year.
[3] Name changed from UAL.
[4] No. 8 in metal products last year.

A REPORT CARD ON REAGAN

With a year to go, he has flunked the course in budget balancing but has scored three unequivocal successes. And his Russian seminar with Gorbachev looks promising.

■ *by Lee Smith*

AS RONALD REAGAN starts his last year in office, the time is right for a preliminary accounting of his legacy. Reagan's presidency is particularly hard to assess because it is filled with paradoxes. He portrays himself as a fiscal conservative who would just love a constitutional amendment barring deficits. But the government has run up the biggest debt ever during his seven years. He has been among the most strident of anti-Communists. Yet he has just signed one nuclear arms reduction treaty with the Soviet Union and may well complete a more sweeping agreement before he leaves office. He has presided over the longest peacetime economic expansion—and the deepest stock market plunge.

Paradoxes aside, Reagan has had three unequivocal triumphs. He helped beat down inflation. He made the military strong again. He restored the authority of the presidency and American self-respect. Add to that tax reform, though not without a few asterisks. Reagan's reductions in marginal tax rates, starting with the 1981 cuts and culminating in the Tax Reform Act of 1986, lowered the maximum personal rate from 70% to 28% and inspired a worldwide movement away from sky-high rates designed to redistribute wealth. Faster growth has resulted in country after country—including the U.S. But the 1986 law shifted some of the tax burden to business, a certain crimp in investment. In addition, Reagan's first cuts never generated the growth his supply-siders promised, and he failed to offset revenue losses with spending reductions.

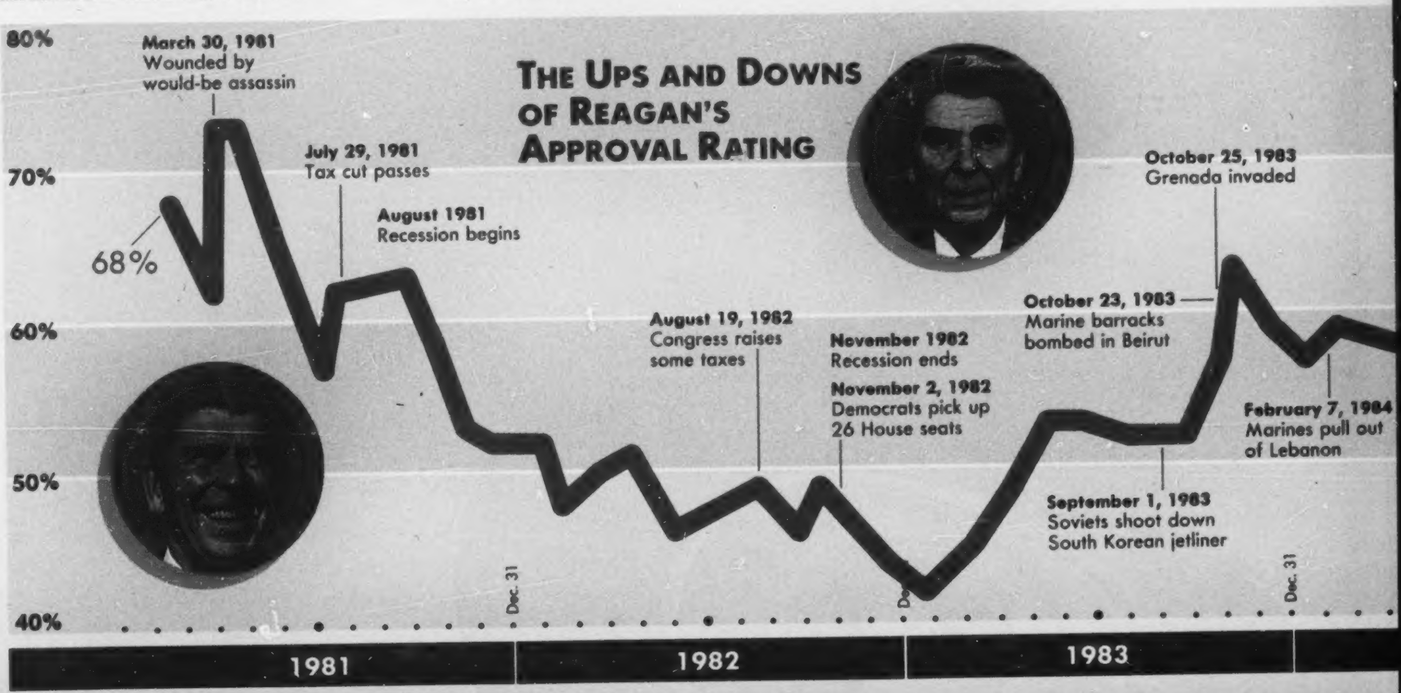
The final grades for the Reagan era won't be available until years after he leaves office. Many big bills Lyndon Johnson's Great Society ran up didn't arrive until the late 1970s. Who can say with certainty, for example, whether Reagan's intransigence in dealing with the Sandinistas will poison relations with Central America or turn out to be a kind of "tough love" that the region ultimately will appreciate?

The agreement Reagan just made with Mikhail Gorbachev to eliminate intermediate- and short-range missiles in Europe is another of those events that need historic perspective to evaluate fully. But certainly it belongs on the positive side of Reagan's ledger.

Unlike his immediate predecessors, Reagan aroused and led the country, although much more persuasively before the Iran-contra affair than after. Along with Britain's Margaret Thatcher, he set an agenda that emphasized reliance on market forces rather than the clumsy hand of centralized economic control.

He restored much of the presidency's tra-

REPORTER ASSOCIATE *Lucretia Marmon*



	1980	1987	PERCENT CHANGE
Inflation	9.9%	3.3%	−71%
Employment in millions	99	113	+14%
Army recruits with high school diplomas	56%	91%	+61%
Savings as a percent of personal income	7.1%	3.4%	−52%
Budget deficit in billions	$73.8	$148	+50%
Trade deficit in billions	$36	$175	+386%
Farm subsidies in billions	$2.8	$22.4	+711%

Some Good News . . . and Bad

Inflation dropped dramatically, millions of jobs were created, and Army recruits got smarter. But the trade and budget deficits grew into the twin towers. And saving money went out of style.

ditional power as a bully pulpit. While others seemed stooped by the weight of the office, Reagan has liked the heft of it from his first day in the White House, refusing to let anything depress him for long. Who can forget Reagan's jaunty quips as he was wheeled into surgery after being shot by a would-be assassin? By word and example he convinced the U.S. all over again that it is a "can do" country.

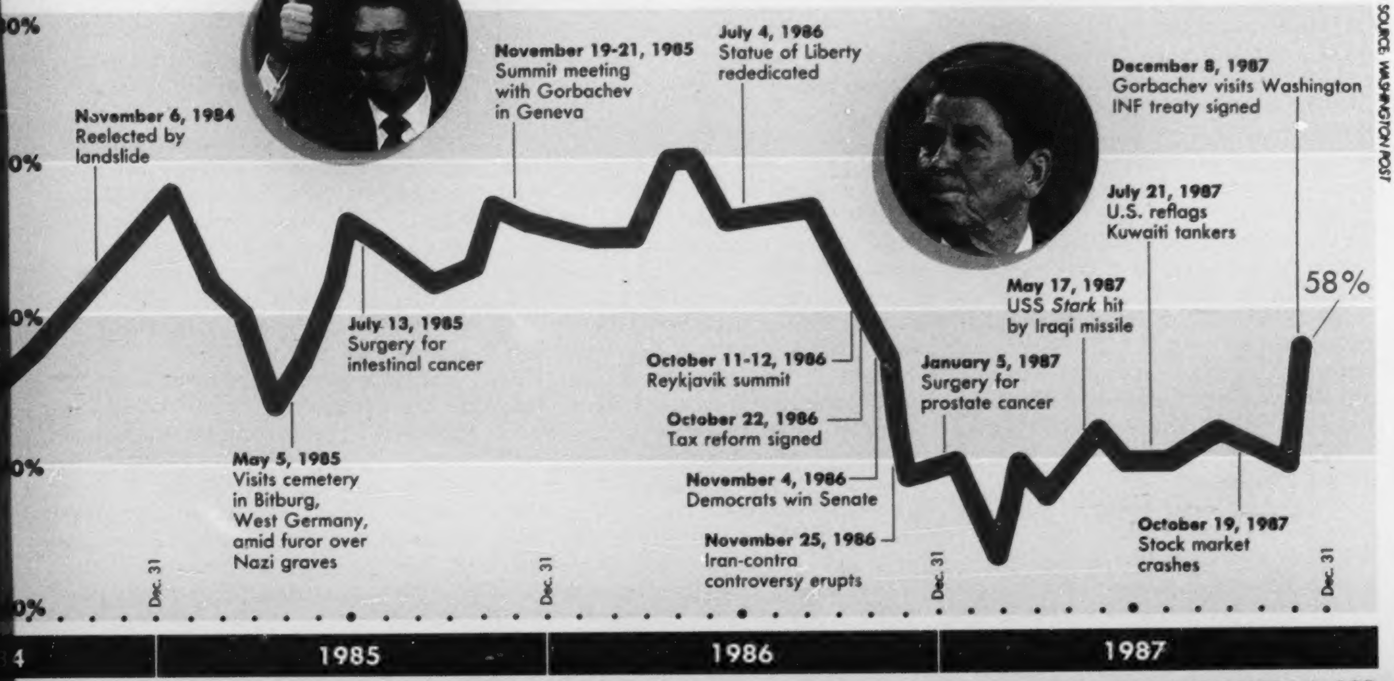
Recall the national despair of 1980. An attempt to rescue American hostages from the U.S. embassy in Tehran crumbled in the Iranian desert. As for the economy, a cartoon that year said it all: A frantic shopper raced up and down the aisles of a supermarket trying to get ahead of the clerk who was stamping higher prices on every item in the store. The inflation rate was about 12% on election day.

Some 43 million shoppers voted for Reagan. By 1983 inflation was down to 4.1%, to the astonishment of the many economists who thought such a reduction would take a decade or more. The conqueror was, of course, Federal Reserve Chairman Paul Volcker, who drastically cut the money supply. But Volcker also got help from Reagan. Officially the President has no authority to tell the Fed what to do, but Reagan was free to go on television and tell the nation the Fed was strangling the economy. If he had, even Volcker's iron will might have suffered a bit of metal fatigue. Says Lyle Gramley, a governor of the Fed at the time: "Volcker appreciated the President's support."

Reagan's other blow against inflation—the firing of 11,300 air traffic controllers in August 1981—was more impressive. Says Murray Weidenbaum, the first chairman of Reagan's Council of Economic Advisers: "Previous Administrations typically would get involved in important strikes and push for a quick resolution, which generally meant an expensive settlement." The controller confrontation made clear that Reagan would not urge employers to settle at any price. Wage and salary increases have been modest during the Reagan years—an average of 4.9% annually—and the amount of work that didn't get done because of strikes and lockouts fell from 21 million days in 1980 to about five million in 1987.

The third big success of Reagan's first term was strengthening defense. In the 1970s the country, sick of war, carelessly turned its back on its soldiers. Defense budgets dwindled from 6.9% of GNP in 1972, the last big-spending year of the Vietnam era, to 5% in 1980. Pressed for cash, the Pentagon cut back on banal but essential items like ammunition and training. Military pay fell so far behind civilian wages that the Pentagon had to flesh out the ranks with a raffish lot of high school dropouts. On some bases they were such a loutish crew that officers kept them in the background when Defense Secretary Harold Brown made inspection tours.

By the time Reagan entered the White House, Congress was ready to oblige his campaign promise of a military buildup. Even Carter had belatedly recognized, after the Soviet invasion of Afghanistan in December 1979, that the services had been neglected. He asked for an increase of 5.4% above inflation in the last defense budget he submitted. Congress added 3.6% to that, gave Reagan the 3% extra he asked for, and continued to increase military spending for the next four years, largess never before seen in peace-



SOURCE: WASHINGTON POST

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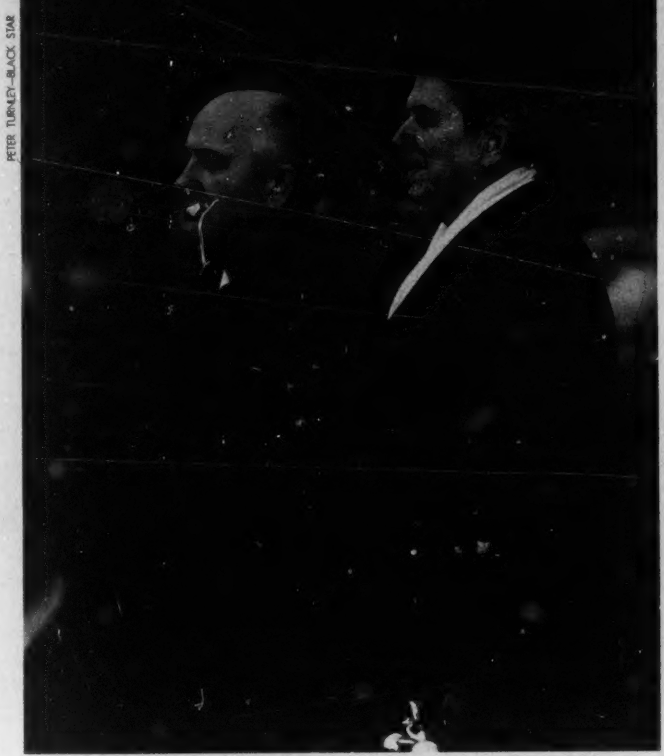


PETER TURNLEY—BLACK STAR

At the next summit, *in Moscow, Reagan will need patience.*

time. From 1982 through 1986 the Pentagon received more than $1.4 trillion, or 38% more than it had in the previous five years after adjusting for inflation.

The U.S. has doubled the number of trucks and tanks and the amount of ammunition stockpiled in Europe. The Navy has 563 ships, 84 more than it had seven years ago. The latest model tanks and planes in the arsenal can strike far more devastating blows than their predecessors. The most remarkable advance in defense, and the one least noticed, is that 91% of Army recruits come equipped with high school diplomas, compared with only 56% in 1980. The new troops are smart enough to use their smart weapons. Once widespread, drug use and brawling have ceased to be serious problems.

REAGAN DESERVES the credit. He helped revive respect for the uniform and won the soldiers more money. Supreme Court Justice Thurgood Marshall and others have castigated Reagan for indifference to minorities. Yet blacks and Hispanics make up almost a quarter of the military population, so the pay increase has put a lot of money into the pockets of people Marshall is concerned about.

When it comes to taxes, Paul Craig Roberts, a supply-side economist who was an assistant treasury secretary in the early 1980s, waxes ecstatic as he contemplates what has transpired. "Property rights have been greatly expanded," he says, "and when that happens without guns it's extraordinary." In the Middle Ages serfs generally paid no more than a third of their incomes in taxes, so in Roberts's view Americans have risen from worse than serfdom to serfdom. For all the hyperbole, Roberts has a point. Americans generally have a greater stake in what they earn.

Those at the bottom of the tax scale got a big break from the tax law of 1986. "Tax reform is the one new antipoverty program of the Eighties," says Sheldon Danziger, director of the University of Wisconsin's Institute for Research on Poverty. A divorced woman, say, supporting a child on a taxable income of $10,000 a year, paid as much as $900 in taxes under the old law. This year no one caring for a child or other dependent on such an income will pay a cent.

Business taxes, however, are going up. Over the next five years the 1986 law will shift about $120 billion in taxes from individuals to corporations. Some of that will get passed on to consumers—a regressive tax. The rest will hit capital, reducing investment and the benefits that flow from it.

The greatest failure of the Reagan years has been his cavalier attitude toward spending. The $1 trillion budget that the President submits to Congress in January is about 16% higher in constant 1982 dollars than Carter's last. Congress could have curbed spending, of course. Still, the tragedy of the Reagan years is that he started with a mandate to cut spending but squandered it by not taking tough decisions, as in the case of Social Security.

Most citizens didn't worry about deficit spending because Reagan didn't worry. Jerry Jordan, a member of Reagan's Council of Economic Advisers in 1981 and 1982, argues that no Democratic President would have been allowed to run up such deficits. Americans handed Reagan a platinum credit card for the same reason they let Nixon deal with China, says Jordan. Republicans are anti-Communist and won't be gulled. Republicans are financially responsible and won't splurge with plastic.

SUPPLY-SIDERS on the Reagan team maintained that the cut in tax rates would toss so much fertilizer on the economy that new revenues would sprout, more than making up for the cuts. They still argue that the strategy would have worked if Volcker hadn't been so stingy with water. Tightening the tap on the money supply threw the economy into recession. The supply-siders have a point, but Volcker concentrated on the most immediate problem, inflation, and he was right in doing so.

The correct answer to closing the deficit was simple but painful: Cut spending. That Reagan refused to do. Carter's deficit of $73 billion in 1980 was considered scandalous. By 1986 the deficit was three times as large, and the adjectives were exhausted. A few blunders stand out as especially egregious:

▶ **Blunder 1.** Reagan paid tens of billions too much for the military muscle he bought. The money came in greater gobs than the generals and admirals could spend wisely. Each service asked for whatever it thought it needed to whip the Russians, as though it would have to do the job alone. The prime example was the Navy, which before Reagan had two major tasks in the event of war: Protect sea lanes with its 12 aircraft carrier groups, and fire nuclear missiles at the Soviet Union from submarines. Navy Secretary John Lehman promoted an additional mission: the so-called forward strategy of launching bombers from carriers to attack Soviet land bases in Murmansk and Vladivostok. To carry out that new mission, Lehman persuaded Reagan to expand the number of carrier groups from 12 to 15.

But many defense experts, including former Navy men, maintain that the strategy won't work because it would take at least 20 groups, not 15, for the Navy to protect the sea lanes and assault Soviet bases at the same time. So the addition of three carrier groups slips between the slats: too few carriers to attack the Soviet Union, more than enough for guard duty and occasional flash crises off the coast of Libya and elsewhere.

continued

The expense is huge. Each extra carrier group, complete with 90 or more planes and eight to ten escort ships, runs about $18 billion, not including fuel and pay for 7,000 crew members.

▶ **Blunder 2.** Reagan passed up opportunities to control Social Security expenses. In 1985 Senate Republicans, at the risk of infuriating elderly voters, agreed to an Administration plan that would have withheld retirees' cost-of-living increases for one year. The scheme would have saved about $7 billion in the first year and about $10 billion every year after that, because future increases would have been figured on a lower base. But at the last minute Reagan changed his mind, abandoned party colleagues, and discarded the idea. Similarly, Reagan refused to put Social Security on the agenda in the budget compromise with Congress two months ago. The President should have shown the same courage he displayed in backing Volcker.

▶ **Blunder 3.** In 1985 Reagan's Agriculture Department produced a program that turned out to be the most expensive subsidy for farmers ever. To encourage exports the Administration lets farmers sell crops abroad at the market price and then pays them the difference between that and a so-called target price, an amount set at whatever Farm Belt legislators can win for their constituents. "That program has been the greatest disappointment of the Reagan Administration," says Burton Pines, a vice president of the neoconservative Heritage Foundation and an enthusiastic supporter of the President in other respects. It cost taxpayers more than $22 billion in 1987, more than eight times 1980's farm handouts.

BRAD MARKEL—GAMMA/LIAISON

Tax reform *was a victory with an asterisk. This is the signing, with great fanfare, of the 1986 act.*

SOME ANALYSTS see a brilliant tactician at work behind Reagan's profligacy. William Schneider, a resident fellow at the American Enterprise Institute, a centrist research organization in Washington, D.C., points out that the huge deficit has stopped the Democrats from advancing programs on their social agenda, such as national health insurance and guarantees of work for all. Reagan slowed the advance of the welfare state without direct confrontation.

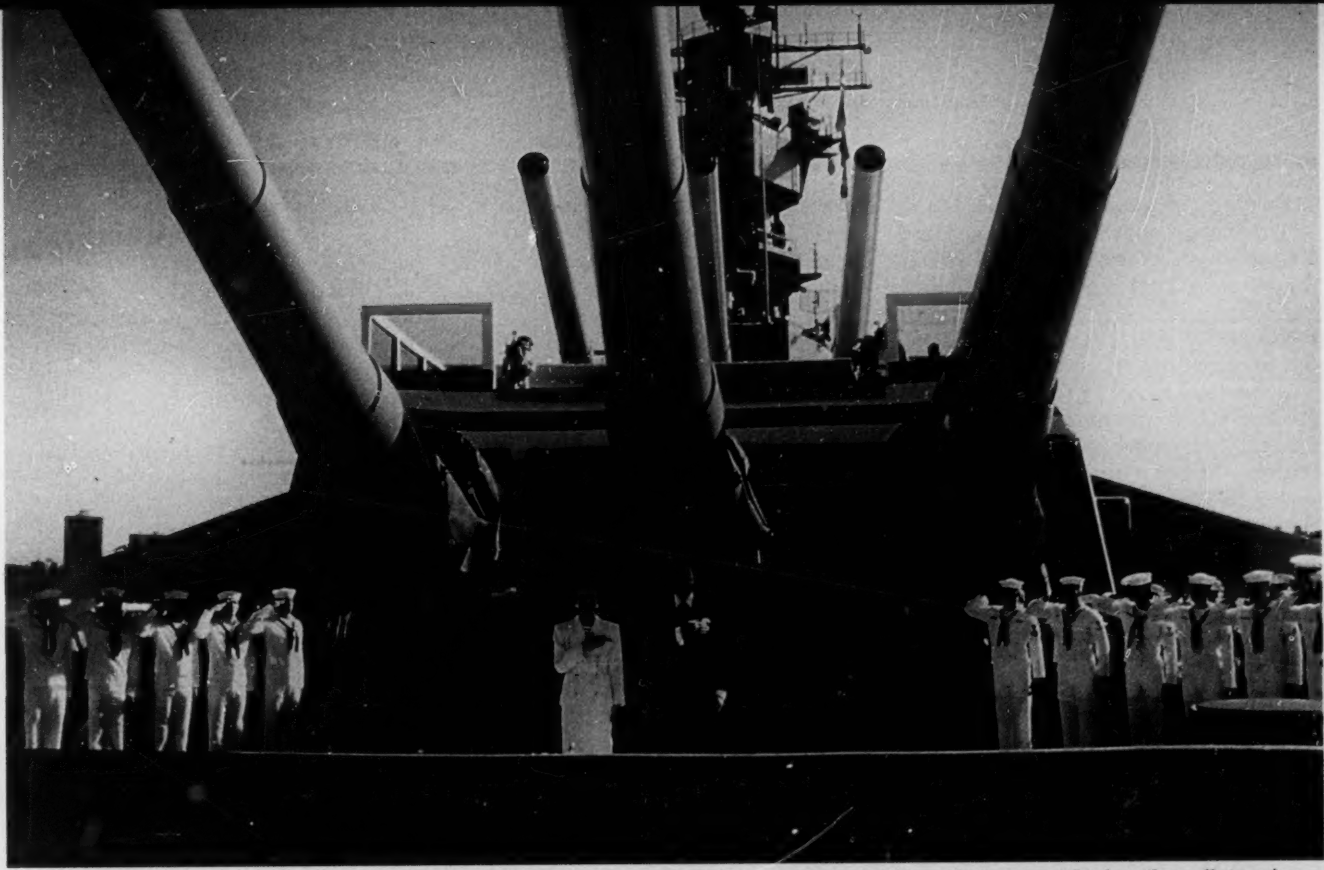
Perhaps, but Reagan certainly didn't intend another side effect of the growing debt, the deepening trade deficit. And the budget deficit has held down defense expenditures since 1985 as well. Already some of the gains Reagan can be proud of are starting to slip. The number of training hours flown by fighter pilots peaked in 1985, for example, and has declined a bit. The Navy says that under its new $100 billion budget it will have to cut down on the steaming time of ships and put off some routine maintenance.

The U.S. has also sacrificed much of its economic independence. Instead of being a creditor to the world as it was in 1980, the U.S. has to borrow abroad $10 billion to $15 billion a month. Fortunately for the U.S., it owes the money in dollars, so unlike Brazil it need not buy someone else's expensive currency to settle up. Though the Japanese have been urging Washington to sell some bonds denominated in yen—which would penalize the U.S. if the yen continues to strengthen—the Treasury has so far resisted. But if interest rates are not high enough to keep attracting Japanese dollars, the U.S. may have to give in, putting the country on the scary road to quasi-Latin status.

Nor did Reagan make much progress in getting government off citizens' backs. He could not advance the cause of deregulation much beyond Carter's laudable achievements of freeing airlines to fly where and charge what they want, and letting truck drivers carry loads where they like. Banks are still not allowed to compete head on with securities firms. Reagan has not lived up to his campaign promise to disband the education and energy departments either. In fact, he now wants to elevate the Veterans Administration from agency to department and thus give a seat at the Cabinet table to a pleader for more benefits for old soldiers. A White House staffer offers a cynical explanation for the principle guiding the President: "Veterans tend to vote Republican."

Reagan has slowed the rate by which the bureaucracy multiplies itself but hasn't reversed it. The number of federal employees, not counting the military, grew an average of 33,000 persons a year during the Carter Administration and 11,000 annually so far in the Reagan years. The federal government now employs 2.93 million persons outside the Pentagon, vs. 2.85 million in 1980.

Still, Reagan partly succeeded in shifting the burden of problem solving to local government. Though governors for years have led delegations abroad seeking foreign investment, the pace picked up dramatically once it sank in that there would be no big job-creation programs coming out of Reagan's Washington. Fifty-six states and port authorities have representatives in Tokyo, compared with only 12 in 1980. Harvard economist Robert Reich is not an admirer of the President but believes Reagan has forced



DIANA WALKER—TIME MAGAZINE

Swelling with pride *as well as ships in the Reagan buildup, the Navy is strapped for money for routine maintenance and to keep them all steaming.*

local government to be more innovative, which has in turn made city and state jobs more appealing. Says Reich: "Local government now attracts the most talented group of people since the Progressive era."

The voluntarism that Reagan has championed is on the rise as well. "People are helping other people first-hand, rather than letting government do it," says Michael Novak, who writes on religion and policy. "These will go down as the most communitarian years in decades." Contributions to charity, not counting church donations, rose dramatically from $49 billion in 1980 to $87 billion in 1986—3% a year faster than the growth of GNP. That was helped no doubt by more favorable treatment in the 1981 tax bill, but also by the sense that government was far less charitable under Reagan than in the past.

It would be hard to give Reagan or anyone else credit, but tradition and conservative values may be making a comeback. There were more marriages—and fewer divorces—in 1986 than in 1980. Education Secretary William Bennett thinks Reagan's most important contribution has been to reintroduce the concept of values—not just conservative values, but *any* values—into a society dominated by relativist thinking. "People used to feel goofy about talking about patriotism, family, self-reliance, respect for property," says Bennett. "Reagan made it okay to talk about those things."

Reagan's promotion of values is not as convincing as it used to be. In the Iran-contra scandal the President did what he said no one should ever do. He made terrorism profitable by selling arms in the hope of getting hostages. Then he was far less than straightforward about it. His reputation has rebounded, but two qualities Americans admired about him, common sense and honesty, will never look as solid again.

THE VIRTUE that could rescue him is patience. Gorbachev is itching for a 50% cutback in strategic nuclear weapons. He wants to demonstrate to the Politburo and the world that unlike his predecessors he can close a big deal with the U.S. More than that, he badly needs a break from the arms race to pour more resources into his vast reorganization of the Soviet economy. Reduction would be good for both superpowers. Provided the U.S. is allowed the right mix of sea-, land-, and air-based missiles, it will retain enough to pulverize the Soviet Union, even after a surprise attack. Yet fewer warheads would mean less chance of accidental disaster, and the U.S. and the Soviet Union would have established a precedent for resolving difficult issues without warfare.

Even so, what is more significant for the U.S., and for European and global stability, is shrinking the size of conventional armies. There is no way the U.S. can match Russia man for man. By some estimates the U.S. spends 100 times as much as the Soviet Union to equip, train, and pay a soldier. In addition, the Soviets and their allies back up their soldiers with twice as many tanks as NATO has, and almost three times as many artillery pieces. They have 201 divisions, vs. 149 for NATO. As budgetary constraints increase, the Defense Department plans to trim 100,000 troops by the mid-1990s.

What Reagan must do is persuade Gorbachev that because of the Soviet Union's huge advantage in conventional forces, any agreement for fewer nuclear warheads must be accompanied by reductions in troops. In conventional forces, the cuts cannot be one for one. The Warsaw Pact would have to demobilize far more divisions than NATO to bring the two sides into balance; five or more for every one of NATO's. Even if Gorbachev goes along, the idea won't go down easily with his field marshals. Complicated agreements to reduce nuclear and nonnuclear arms simultaneously could take years to work out. But at least Reagan can establish the basic principles and get the process started. That's not the sort of achievement that will win him a standing ovation as he leaves the stage. But it might well impress the critics who look back on this drama from the perspective of future generations. F

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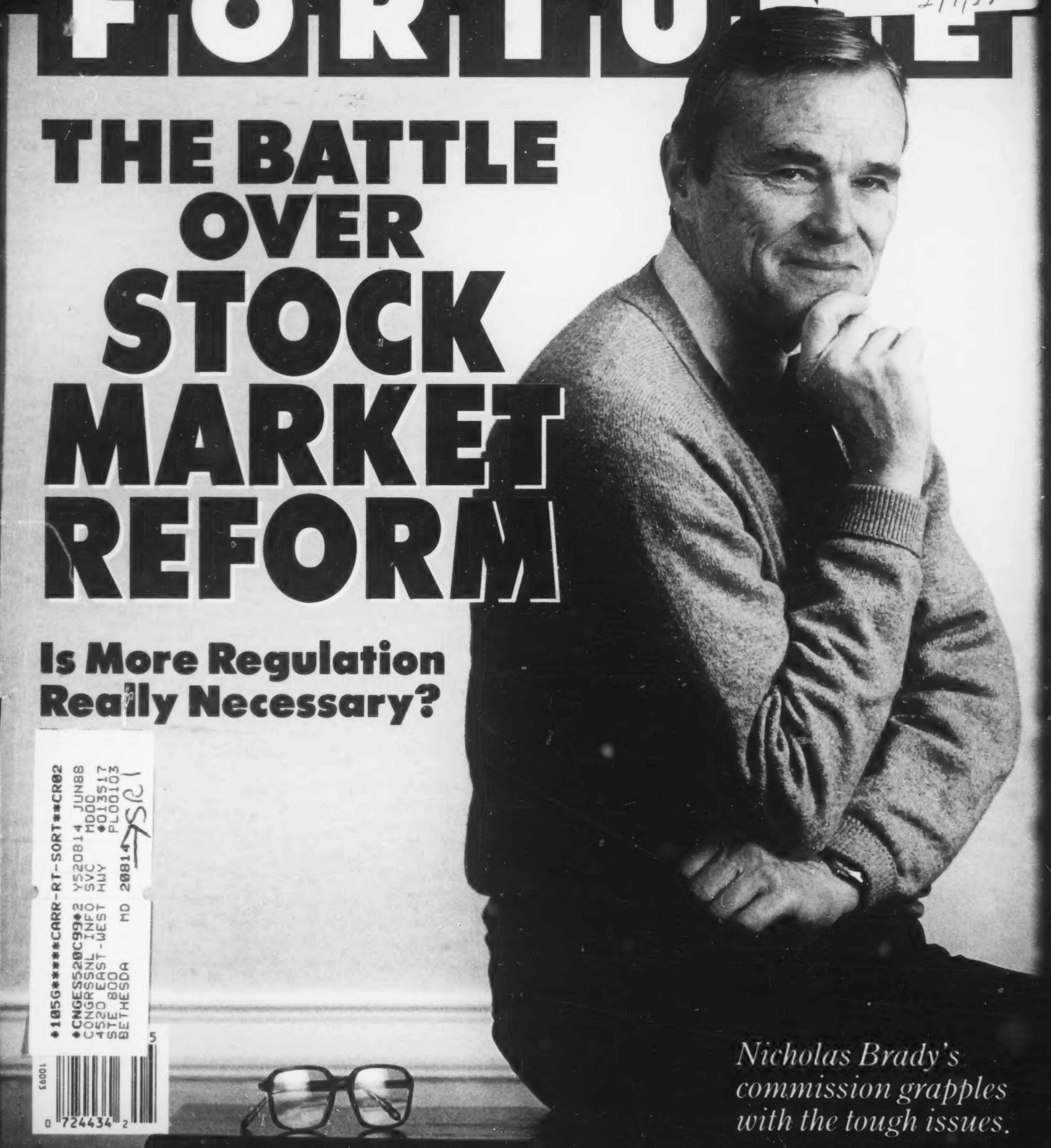

THE BATTLE OVER STOCK MARKET REFORM

Is More Regulation Really Necessary?

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Nicholas Brady's commission grapples with the tough issues.

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"Free markets eventually destroy themselves."

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Money center banks might be a wild card. "They are the most unloved [stocks] now. Look at steel a year ago."

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"You have all the resources of AT&T and yet you have a lot of freedom to do things the way a small company can."

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"As baby-boomers aged, we grew to serve them. We've become a middle-aged company along with our customers."

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"The [EEC] drive for unity is the most important thing that will happen here in the next 50 years."

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THE EDITOR'S DESK

JOHN ABBOTT

Dan Seligman, a.k.a. Dr. Keeping Up, relaxes in his book-lined living room.

THE HANGOVER from Black Monday's stock market bash has President Reagan's Brady Commission and other would-be exchange regulators resolving to reform. Should the country heed them and adopt new prohibitions on trading?

MARIANNE BARCELLONA

Writer Rob Norton

Searching for expert answers, associate editor Rob Norton and reporter Charles Riley spent six weeks sizing up where the markets failed, where they worked, how they've been changed by Black Monday—and how new trading rules may affect investors and the U.S. economy after the binge. Norton's sober-eyed search took him from the din of the trading pits of the Chicago Mercantile Exchange to the tranquil, ivory-towered aeries of the country's leading market historians and theoreticians. Of his timely analysis, which was edited by Julie Connelly and begins on page 18, Norton concludes, "Despite the stampede to reform markets that essentially functioned well, none of the reformers' proposals would prevent another Black Monday from happening."

Dan Seligman is an urbane, soft-voiced, unfailingly courteous colleague who transforms himself in these pages fortnightly into the curmudgeonly Dr. Keeping Up, an acerbic slayer of (mostly liberal) prig-headedness. In both personae, Super-Dan uses elegance and trenchant wit to wage his never-ending battle against fustian thinking, be it from overbearing bureaucrats, loony activists, or insufficiently rigorous colleagues.

Now, after 37 distinguished years with FORTUNE, Dan has decided to retire as our associate managing editor. But you'll be happy to hear that he has agreed to continue, as contributing editor, to write Keeping Up. Since he started his inimitable column in 1976, he has produced it for 275 consecutive regular issues. With our readers, we rejoice that Dr. Keeping Up will continue to educate, lambaste, and entertain.

Marshall Loeb
MANAGING EDITOR

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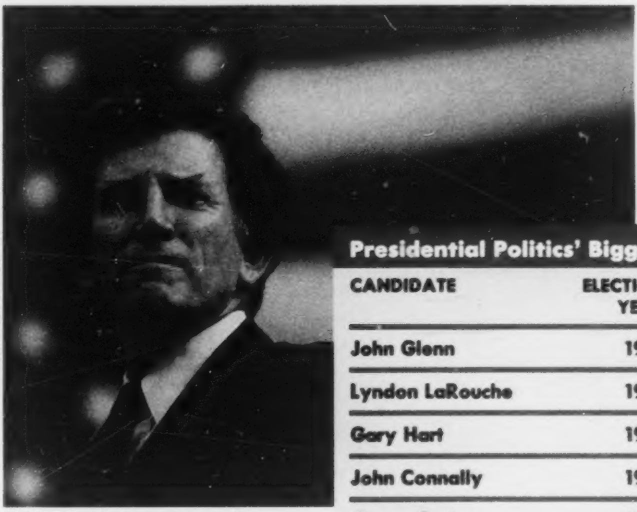
sales were up about 40% over the same period of 1986. Houston-based **U.S. Home** isn't so lucky: As interest rates fell after October 19 so did sales, and executives there aren't sure how much the crash had to do with it. In some parts of the New York metropolitan area, price increases have exceeded 20% annually but should slow down as Wall Street layoffs continue.

"Over the next six weeks we're going to see more of a consensus that 1988 is going to be a very good year for housing nationwide," says Kaufman & Broad chief Bruce Karatz. Economist Crist forecasts an 8% decline in single-family starts in 1988 because he thinks interest rates will rebound. But that doesn't necessarily mean prices will sag. Home buyers have been flocking to adjustable-rate mortgages, which are more attractive than at any time since the early 1980s; adjustable rates recently ran a huge three percentage points below fixed rates. And, says the National Association of Realtors, rising family incomes have recently helped to push the affordability of housing to a ten-year high.

I will gladly pay you Tuesday, Nov. 8 . . .

■ Should you do business with a presidential candidate? Certainly not, judging from what happened to many companies that helped out Gary Hart, John Glenn, and others in the 1984 race. The **National Bank of Washington**, Hart's biggest creditor, last summer tried auctioning off the 1984 campaign's only remaining assets—93 multicolored lithographs by artist Robert Rauschenberg. The bank is still stuck with 65 of them and will probably never see $364,000 it is still owed.


DAVID BURNETT—CONTACT

Will Gary Hart ever pay up?

A lot of companies that did business with Hart lost in 1984. He persuaded some creditors to settle for an average of 52 cents on the dollar, but others, such as **Xerox**, refused to settle and may end up getting nothing back. Reason: Even though Hart expects to get about $1 million in federal funds for his current campaign, the courts recently ruled that 1984 creditors cannot lay claim to 1988 money. The Federal Election Commission might let Hart use this year's funds to pay 1984 creditors, if he asked permission. So far he hasn't.

About repaying his debts, Hart says, "I'm going to keep after it until I get it done." But he hasn't gone after it for some time. The last significant event held by Hart to reduce 1984 debt was a $25-a-person birthday party for himself in November 1986 at a Washington disco called the Bank. The National Bank of Washington says it got all the proceeds, a whopping $6,630.

Not every candidate leaves a trail of bad debts. Ronald Reagan and Walter Mondale report no money owed from 1984. Hart's financial debacle has made the 1988 race a hassle for practically all the other candidates. They can't get credit from many companies, including **Federal Express**. Bankers are wary about lending. As for Hart's campaign—it's paying cash for virtually everything.

Presidential Politics' Biggest Debtors

CANDIDATE	ELECTION YEAR	DEBT OUTSTANDING as of 9/30/87
John Glenn	1984	$2.4 million
Lyndon LaRouche	1984	$2.3 million
Gary Hart	1984	$1.1 million
John Connally	1980	$842,000
Jimmy Carter	1980	$676,000
Alan Cranston	1984	$454,000
Edward Kennedy	1980	$82,000

SOURCE: FEDERAL ELECTION COMMISSION

AN INCH WORTH OF REAL ESTATE

A bit of Japan the size of this black square somewhere near Tokyo Station would cost $151. That works out to about $14,000 for a piece as big as this page. In midtown Manhattan a square inch of land averages $12.50, as it has since 1983.

Man without a country? Save up.

■ Nathan Hale died for it. Now you can buy it: citizenship. Though civics teachers still uphold it as priceless, it can be had legally for as little as $25,000 in Belize. For only a few hundred thousand dollars countries like Canada offer qualified investors permanent residency, which carries all the advantages of citizenship except the right to vote. Surely, you say, the U.S. would never follow suit. Well, it might—and probably should.

Political malaise in Hong Kong, the Philippines, the Middle East, and other hot spots has foreign capitalists seeking havens not just for their fortunes, as in past years, but for themselves. Many would choose the U.S. but quickly discover that U.S. immigration policy does not smile on them just because of the capital they can import or the jobs their capital could create.

"Other countries, like Switzerland, take these factors into account," says Charles Foster, chairman of the American Bar Association's committee on immigration law. "Ours does not. A live-in domestic can get into the U.S. easier than a Hong Kong businessman with $10 million to invest, assuming the domestic has help from an employer."

So whither the Hong Kong businessman? Perhaps to Australia or Canada, countries that solicit his citizenship. While neither sells citizenship outright, both offer special treatment for immigrants carrying

STAFF *Kate Ballen, Alan Farnham, Brett Duval Fromson, Patricia Sellers*

PETER SIBBALD—PICTURE GROUP

This West German immigrant curried favor by investing in a Canadian horse farm.

The Cost of an Open Door
(into selected countries)

U.S. (proposed)	**$2 million**
Australia	**$360,000**
Canada	**$190,000**
Cayman Islands	**$180,000**
Costa Rica	**$75,000**
Belize	**$25,000**

heavy luggage. In Canada, immigrants who prove they have investment skills and $250,000 (Canadian) to invest get permanent resident status. Without the money, that may be impossible.

Will the U.S. ever adopt such policies? Foster of the ABA hopes so: "All countries have considerations built into their immigration law. Given the U.S. trade balance, why not include economic ones?" Legislation being drafted by Senator Alan Simpson of Wyoming would do just that. In the latest version, a warm U.S. welcome would go out to immigrants who could put their capital to work employing ten American workers. How much capital is that, exactly? On the Hill they're discussing figures between $500,000 and $2 million.

Hungary's capitalist crusade

■ The tax man has sneaked behind the Iron Curtain and is emphatically not getting any Red carpet treatment. On January 1, Hungary became the first Soviet bloc country to impose a personal income tax on citizens. Now they also pay a value-added tax when they shop. Hungary was an early innovator in introducing market-oriented policies, and its latest package goes the furthest yet. The government is cutting subsidies to industrial companies, raising prices, and asking citizens to suffer silently as it gets control of a worrisome budget deficit and ballooning foreign debt.

Karoly Grosz, 57, who became Prime Minister last June, is the Gorbachev-style politician who wants to inject a bigger dose of capitalism into Hungary's near-stagnant economy. Will it work? Experts at the World Bank say the government's ability to hold the public's confidence will be an important factor. Anticipation of 15% price rises sparked runs on furniture, VCRs, and other products last fall, and some workers reportedly set factories ablaze when bread prices surged. Hungarian Communist Party leader Janos Kadar, 76, is yielding authority to Grosz but clearly doesn't want to end a 32-year reign on an unpopular note.

Hungary's most recent experiments in capitalism have yielded mixed results. About 20 enterprises were expected to be declared bankrupt last year, but only three were reined in because unemployment is politically taboo. The most successful industrial reform effort: **Taurus**, a large state-owned rubber products company that shut down money-losing lines and introduced performance incentives with the help of the **Boston Consulting Group**. This year Taurus's 10,000 workers are getting the opportunity to buy "profit tickets" in the company, which are something like stock without voting rights.

Grosz's plan for 1988 puts some market sense into a controlled economy, but maybe not enough. In return for losing some government subsidies, state-owned companies will get to keep a bit more of what they earn. But taxes on private businesses, the economy's most dynamic sector, will more than double to 25% of profits. Says Timothy Condon, an economist at the World Bank: "Hungary may be in danger of choking its golden goose."

Hungary's shoppers pay for reform.

FILIP HORVAT—PICTURE GROUP

Mascots again

■ Put a salt lick in the boardroom: Pegasus is back. **Mobil**'s winged horse is just one of a stable of corporate mascots making a comeback in popularity with customers and company directors. Old mascots are being revived and new ones are aborning.

James Shennan Jr., whose San Francisco design firm, **S&O Consultants**, advises companies on identity matters, says CEOs have become reluctant to adopt identities too hard edged or abstract. "United's experiment with **Allegis** really broke the camel's back," he notes, though he might better have said *brought* the camel back. Especially for marketing purposes, words and symbols that immediately evoke warmth are in high demand.

NBC welcomed back its peacock after years of flirting with a stylized N. "That N was too cold and sterile," says Elinor Selame, president of Boston's **Selame Design**. **Hartford Insurance** has rediscovered its stag, **Exxon** its tiger. Newest members of the corporate menagerie include

THE BEST AND WORST

Even with the bear on the loose last year, there were still a few profitable places to hide.

■ *by Julianne Slovak*

WHILE NO ONE was completely safe from the ursine monster in 1987, if you were in the right stocks you could have made a killing. FORTUNE's rankings of the year's best and worst performers show that reviving basic industries turned out to be surprisingly good bets. Of the top 25 stocks, more than a third were in metals or chemicals. Some of these companies had big losses only a year or two ago. No. 12 Bethlehem Steel is barely dry from the $152.7 million bath it took in 1986 on top of losses totaling $1.9 billion in the previous four years. But Bessie is out of the tub now after showing profits in four consecutive quarters. Other winners: personal computer and software makers.

If you had bought the 100 top stocks on FORTUNE's list, you would have had a 100% median return for the year—smashingly better than the market as a whole. Although the market reached intoxicating highs before the fall, by year's end it had lost virtually all those gains. The Dow Jones industrial average—representing 30 big companies on the New York Stock Exchange—was up just a smidgen, and the Nasdaq composite—mainly small stocks traded over the counter—was down 5.3%.

The lists rank issues traded on the New York Stock Exchange, the American Exchange, and the over-the-counter market. Compiled by Wilshire Associates, rankings

REPORTER ASSOCIATE *Darienne L. Dennis*

THE 100 BEST STOCKS

		STOCK PRICE 12/31		DIVIDENDS PER SHARE	TOTAL RETURN TO INVESTORS
		1986	1987		
1	**Lukens** (Coatesville, Pa.)	$14.750	$48.375	$0.680	236%
2	**Bridgford Foods** (Anaheim, Calif.)	$5.875	$18.500	$0.175	221%
3	**American Cablesystems** (Beverly, Mass.)	$14.125	$44.500	$0.000	215%
4	**Viatech** (Syosset, N.Y.)	$5.375	$16.250	$0.000	202%
5	**Compaq Computer** (Houston)	$19.250	$55.375	$0.000	188%
6	**Georgia Gulf** (Atlanta)	$19.500	$55.000	$0.400	184%
7	**Oracle Systems** (Belmont, Calif.)	$5.188	$14.500	$0.000	180%
8	**American Cellular Network** (Atlantic City)	$5.500	$15.250	$0.000	177%
9	**American Barrick Resources** (Toronto)	$7.563	$20.750	$0.050	175%
10	**North American Communications** (Hector, Minn.)	$8.750	$23.500	$0.000	169%
11	**Lone Star Technologies** (Dallas)	$6.250	$16.750	$0.000	168%
12	**Bethlehem Steel** (Bethlehem, Pa.)	$6.250	$16.750	$0.000	168%
13	**A.H. Robins** (Richmond)	$7.875	$20.500	$0.000	160%
14	**Craft House** (Toledo)	$5.714	$14.250	$0.000	149%
15	**Informix** (Menlo Park, Calif.)	$9.750	$24.250	$0.000	149%
16	**First Mississippi** (Jackson, Miss.)	$6.375	$15.375	$0.240	146%
17	**Molecular Biosystems** (San Diego)	$5.500	$13.500	$0.000	145%
18	**Newmont Gold** (New York City)	$16.625	$40.500	$0.050	144%
19	**Northwest Engineering** (Green Bay, Wis.)	$5.250	$12.750	$0.000	143%
20	**Vista Chemical** (Houston)	$18.750	$45.375	$0.100	143%
21	**Reynolds Metals** (Richmond)	$20.000	$47.625	$0.575	142%
22	**United Education & Software** (Encino, Calif.)	$5.250	$12.500	$0.000	138%
23	**Dyatron** (Birmingham, Ala.)	$5.125	$12.000	$0.000	134%
24	**Scott Cable Communications** (Irving, Texas)	$11.000	$25.750	$0.000	134%
25	**Computer Associates International** (Garden City, N.Y.)	$13.750	$32.000	$0.000	133%

ILLUSTRATIONS BY RENEE KLEIN

STOCKS OF 1987

are based on total return to investors, expressed as price appreciation plus reinvested dividends. To prevent overrepresentation of the most highly volatile OTC stocks, the lists include only companies that started the year at $5 or more per share, adjusted for splits. American depositary receipts of foreign companies and partnership units are excluded.

Nearly one-quarter of the best-performing stocks were on the Big Board, including No. 1 Lukens, a Coatesville, Pennsylvania, manufacturer of steel plate used primarily in ships, tanks, and bridges. The price of plate went up 17% last year after several mills closed and the weak dollar created greater demand for domestic supplies.

But Lukens, the oldest steel company in the U.S., was already poised to take advantage of the strong market. Six years ago the company reorganized management and began cutting costs. Says Chief Executive W. R. Wilson: "We now produce the same amount of steel with half the people." It also diversified into such new businesses as traffic safety equipment and highway signs.

SECOND PLACE GOES to Bridgford Foods, an over-the-counter issue that started the year just above FORTUNE's cutoff price and rewarded investors with a 221% total return. The Anaheim, California, company is a processor of delicatessen meats and frozen biscuits.

The bronze medal goes to prescient American Cablesystems. The Beverly, Massachusetts, cable TV operator outsmarted the bear. On October 13, the company agreed to be acquired by Continental Cablevision for $46.50 per share. The stock closed that day at $26.375, up from $14.125 on January 1. Six days later the market crashed, but the deal is expected to go through soon at the agreed price.

The 50 biggest bombs of the year had problems that went far beyond the crash. Former officials at Endotronics, a Minneapolis biotechnology company, reportedly are under investigation by the FBI and the SEC for possible accounting violations. The same officials are also being sued by shareholders. Endotronics filed for protection under Chapter 11 last March.

Worlds of Wonder, the second-biggest loser, did the same in December. It was a blue Christmas for the three-year-old maker of talking Teddy Ruxpin, Lazer Tag, and other toys. The company has been haunted by engineering snafus and spiraling costs.

So what's going to be hot in 1988? This year won't be any easier to forecast than last, and not many seers got 1987 right. Marshall Acuff, portfolio strategist at Smith Barney, suggests a wild card: money center banks. "They are the most unloved right now," he says. "Look at steel companies a year ago." Well, it's a thought.

THE 100 BEST STOCKS

		STOCK PRICE 12/31		DIVIDENDS PER SHARE	TOTAL RETURN TO INVESTORS
		1986	1987		
26	**Adobe Systems** (Palo Alto, Calif.)	$12.750	$29.500	$0.000	131%
27	**Phelps Dodge** (Phoenix)	$20.750	$47.000	$0.150	127%
28	**Imo Delaval** (Lawrenceville, N.J.)	$13.625	$30.125	$0.560	126%
29	**Crown Crafts** (Calhoun, Ga.)	$6.000	$13.500	$0.000	125%
30	**Microsoft** (Redmond, Wash.)	$24.125	$54.250	$0.000	125%
31	**Armco** (Morristown, N.J.)	$5.125	$11.250	$0.000	120%
32	**Adams-Russell** (Waltham, Mass.)	$20.625	$43.000	$1.000	118%
33	**Food Lion A** (Salisbury, N.C.)	$5.563	$12.000	$0.046	117%
34	**Brockway** (Jacksonville, Fla.)	$22.000	$45.625	$0.960	112%
35	**Columbia Federal S&L** (Washington, D.C.)	$7.375	$15.500	$0.100	112%
36	**Applied Magnetics** (Goleta, Calif.)	$7.438	$15.750	$0.000	112%
37	**Precision Castparts** (Portland, Ore.)	$16.375	$34.500	$0.070	111%
38	**Xsirius Scientific** (Marina del Rey, Calif.)	$6.750	$14.250	$0.000	111%
39	**Food Lion B** (Salisbury, N.C.)	$6.125	$12.875	$0.041	111%
40	**Shorewood Packaging** (Farmingdale, N.Y.)	$5.250	$11.000	$0.000	110%
41	**Apple Computer** (Cupertino, Calif.)	$20.250	$42.000	$0.200	108%
42	**Allwaste** (Stafford, Texas)	$6.000	$12.500	$0.000	108%
43	**Echo Bay Mines** (Edmonton, Alta.)	$11.500	$23.750	$0.070	107%
44	**Western Federal S&L** (Venice, Calif.)	$16.500	$33.750	$0.300	107%
45	**Applied Materials** (Santa Clara, Calif.)	$9.500	$19.500	$0.000	105%
46	**Concord Computing** (Woburn, Mass.)	$7.000	$14.250	$0.000	104%
47	**General Binding** (Northbrook, Ill.)	$11.833	$23.500	$0.293	102%
48	**Prudential Bancorporation** (Seattle)	$13.409	$27.000	$0.000	101%
49	**TBC** (Memphis)	$5.556	$11.125	$0.000	100%
50	**Sahara Resorts** (Las Vegas)	$6.875	$13.750	$0.000	100%

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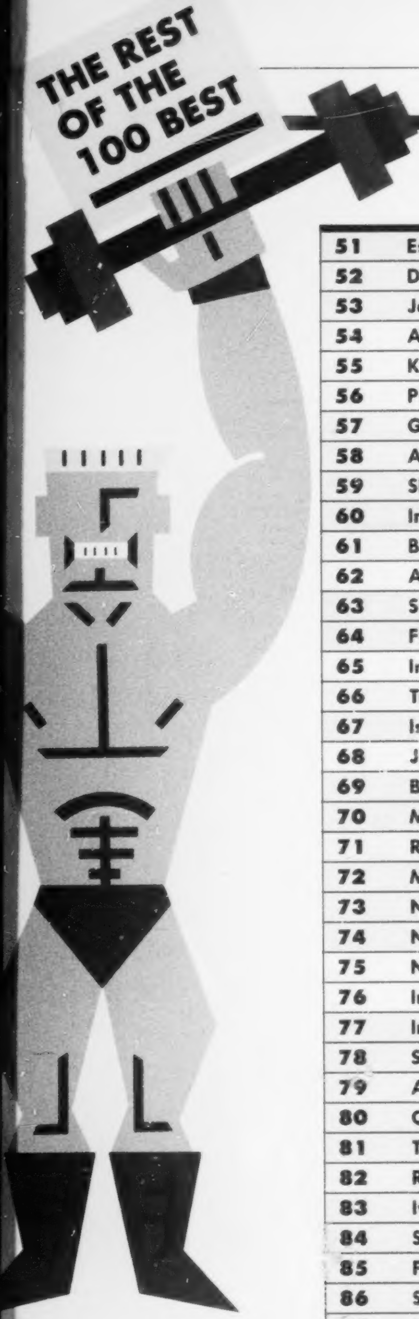

THE REST OF THE 100 BEST

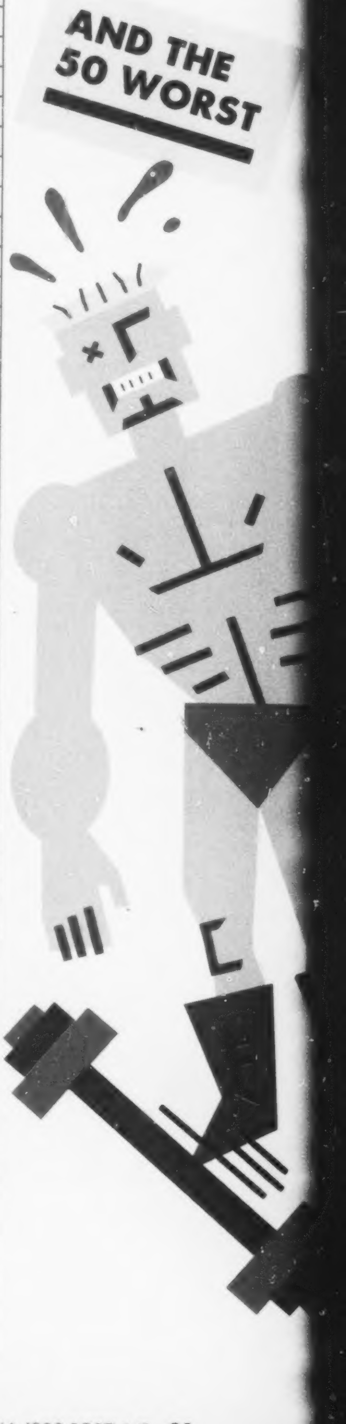
THE 100 BEST STOCKS

		STOCK PRICE 12/31		DIVIDENDS PER SHARE	TOTAL RETURN TO INVESTORS
		1986	1987		
51	**Essex Communications** (Greenwich, Conn.)	$8.250	$16.500	$0.000	100%
52	**Datarex Systems** (Buffalo)	$6.625	$13.125	$0.000	98%
53	**Jacobs Engineering Group** (Pasadena, Calif.)	$9.000	$17.750	$0.000	97%
54	**Atlas** (Princeton, N.J.)	$16.000	$31.500	$0.000	97%
55	**Keystone Consolidated Industries** (Dallas)	$7.125	$14.000	$0.000	96%
56	**Par Pharmaceutical** (Spring Valley, N.Y.)	$10.167	$19.875	$0.000	95%
57	**Gundle Environmental** (Houston)	$8.125	$15.875	$0.000	95%
58	**Arundel** (Baltimore)	$19.625	$38.250	$0.000	95%
59	**Slater Electric** (Glen Cove, N.Y.)	$8.250	$16.000	$0.000	94%
60	**Integrated Device Technology** (Santa Clara, Calif.)	$6.167	$11.875	$0.000	93%
61	**Beard Oil** (Oklahoma City)	$8.375	$16.125	$0.000	93%
62	**Asarco** (New York City)	$14.875	$28.500	$0.100	92%
63	**Sanford** (Bellwood, Ill.)	$13.500	$25.750	$0.000	91%
64	**First Jersey National** (Jersey City)	$43.750	$80.750	$1.800	90%
65	**Inco** (Toronto)	$11.750	$22.000	$0.200	89%
66	**Tranzonic** (Cleveland)	$8.250	$15.375	$0.230	89%
67	**Intel** (Santa Clara, Calif.)	$14.000	$26.500	$0.000	89%
68	**Jackpot Enterprises** (Las Vegas)	$6.125	$11.375	$0.150	88%
69	**Bonray Drilling** (Oklahoma City)	$8.500	$16.000	$0.000	88%
70	**MacMillan Bloedel** (Vancouver, B.C.)	$9.833	$17.625	$0.733	87%
71	**Restaurant Associates Industries** (New York City)	$7.375	$13.375	$0.300	87%
72	**Microbilt** (Atlanta)	$7.500	$14.000	$0.000	87%
73	**Neutrogena** (Los Angeles)	$25.417	$47.000	$0.310	87%
74	**Novell** (Orem, Utah)	$12.875	$24.000	$0.000	86%
75	**Newmont Mining** (New York City)	$30.750	$35.250	$35.825	86%
76	**International Minerals & Chemicals** (Northbrook, Ill.)	$26.500	$47.500	$1.000	84%
77	**Innovative Software** (Lenexa, Kans.)	$9.250	$17.000	$0.000	84%
78	**SEI** (Wayne, Pa.)	$9.250	$17.000	$0.000	84%
79	**Armor All Products** (Irvine, Calif.)	$10.750	$19.250	$0.410	83%
80	**Capitol Transamerica** (Madison, Wis.)	$6.750	$12.250	$0.100	83%
81	**Tel Offshore Trust** (Louisville, Colo.)	$5.000	$7.125	$1.932	82%
82	**Regal-Beloit** (South Beloit, Ill.)	$11.667	$20.750	$0.430	82%
83	**Iverson Technology** (McLean, Va.)	$9.333	$17.000	$0.000	82%
84	**Seaboard S&L** (Virginia Beach, Va.)	$7.500	$13.500	$0.095	82%
85	**Penwest** (Bellevue, Wash.)	$9.500	$17.250	$0.000	82%
86	**Symbol Technologies** (Bohemia, N.Y.)	$18.875	$34.250	$0.000	81%
87	**Versa Technologies** (Racine, Wis.)	$10.600	$19.000	$0.170	81%
88	**Sybra** (Atlanta)	$10.500	$19.000	$0.000	81%
89	**Acmat** (East Hartford, Conn.)	$12.500	$10.750	$16.000	81%
90	**Bolar Pharmaceutical** (Copaigue, N.Y.)	$10.813	$19.500	$0.025	81%
91	**Champion Products** (Rochester, N.Y.)	$19.313	$34.250	$0.490	80%
92	**Ballard Medical Products** (Midvale, Utah)	$5.833	$10.500	$0.000	80%
93	**Northview** (San Diego)	$11.125	$20.000	$0.000	80%
94	**Lotus Development** (Cambridge, Mass.)	$17.250	$30.750	$0.000	78%
95	**Seal** (Naugatuck, Conn.)	$5.125	$9.125	$0.000	78%
96	**Capital Federal S&L** (Sacramento, Calif.)	$9.000	$16.000	$0.000	78%
97	**Century Communications** (New Canaan, Conn.)	$10.000	$17.750	$0.000	78%
98	**St. Jude Medical** (St. Paul)	$15.000	$26.625	$0.000	78%
99	**CEM** (Matthews, N.C.)	$8.750	$15.500	$0.000	77%
100	**Golden Valley Microwave** (Edina, Minn.)	$12.000	$21.250	$0.000	77%

☐ **NEW YORK STOCK EXCHANGE**
☐ **AMERICAN STOCK EXCHANGE**
☐ **OVER THE COUNTER**

THE 50 WORST STOCKS

		STOCK PRICE 12/31		DIVIDENDS PER SHARE	TOTAL RETURN TO INVESTORS
		1986	1987		
1	**Endotronics** (Minneapolis)	$20.750	$0.375	$0.000	−98%
2	**Worlds of Wonder** (Fremont, Calif.)	$19.875	$0.625	$0.000	−97%
3	**Digital Metcom** (Central Islip, N.Y.)	$10.750	$0.375	$0.000	−97%
4	**Reuter Laboratories** (Manassas, Va.)	$5.000	$0.250	$0.000	−95%
5	**Worldgroup** (Evergreen, Colo.)	$5.000	$0.250	$0.000	−95%
6	**De Laurentiis Entertainment** (Beverly Hills, Calif.)	$12.750	$0.750	$0.000	−94%
7	**Matthews & Wright** (New York City)	$10.000	$0.625	$0.000	−94%
8	**Corporate Management Group** (Atlanta)	$6.750	$0.500	$0.000	−93%
9	**Step Saver Data Systems** (Bala Cynwyd, Pa.)	$5.000	$0.375	$0.000	−93%
10	**Cardis** (Beverly Hills, Calif.)	$7.625	$0.625	$0.000	−92%
11	**Radice** (Fort Lauderdale, Fla.)	$9.250	$0.875	$0.000	−91%
12	**Todd Shipyards** (Jersey City)	$20.500	$2.000	$0.330	−90%
13	**Community Shares** (Fond du Lac, Wis.)	$9.750	$1.000	$0.000	−90%
14	**Caribbean Select** (Tampa)	$6.000	$0.625	$0.000	−90%
15	**Southland Financial** (Irving, Texas)	$13.500	$1.500	$0.000	−89%
16	**Satellite Auction Network** (Irving, Texas)	$5.375	$0.625	$0.000	−88%
17	**Spectra Pharmaceutical Services** (Hanover, Mass.)	$5.250	$0.625	$0.000	−88%
18	**Crazy Eddie** (Brooklyn)	$11.500	$1.375	$0.000	−88%
19	**Asbestec Industries** (Pennsauken, N.J.)	$9.333	$1.125	$0.000	−88%
20	**Gemcraft** (Houston)	$7.000	$0.875	$0.000	−88%
21	**Scientific Systems** (Cambridge, Mass.)	$5.000	$0.625	$0.000	−88%
22	**Stars to Go** (Los Angeles)	$8.750	$1.125	$0.000	−87%
23	**Magnet Bank FSB** (Charleston, W. Va.)	$9.375	$1.250	$0.000	−87%
24	**Noel Industries** (New York City)	$8.250	$1.125	$0.000	−86%
25	**Bankers Note** (Smyrna, Ga.)	$10.750	$1.500	$0.000	−86%
26	**Florida Express** (Orlando, Fla.)	$7.125	$1.000	$0.000	−86%
27	**Flores de New Mexico** (Las Cruces, N.M.)	$11.750	$1.750	$0.000	−85%
28	**Financial Corp. of America** (Irvine, Calif.)	$7.500	$1.125	$0.000	−85%
29	**Bayly** (Denver)	$13.500	$2.125	$0.090	−84%
30	**Commonwealth Savings Association** (Houston)	$9.375	$1.500	$0.000	−84%
31	**Heck's** (Nitro, W. Va.)	$10.750	$1.750	$0.000	−84%
32	**Municipal Development** (New York City)	$9.000	$1.500	$0.000	−83%
33	**TS Industries** (Huntington Beach, Calif.)	$17.000	$2.875	$0.000	−83%
34	**Digitext** (Thousand Oaks, Calif.)	$8.750	$1.500	$0.000	−83%
35	**Direct Pharmaceutical** (Kansas City, Mo.)	$8.000	$1.375	$0.000	−83%
36	**Digitech** (St. Louis)	$5.750	$1.000	$0.000	−83%
37	**Gulf & Mississippi** (Columbus, Miss.)	$7.000	$1.250	$0.000	−82%
38	**Challenger International** (Hamilton, Bermuda)	$5.500	$1.000	$0.000	−82%
39	**Sporting Life** (Alexandria, Va.)	$5.500	$1.000	$0.000	−82%
40	**Bancshares National** (San Antonio)	$12.250	$2.250	$0.020	−82%
41	**J. Bildner & Sons** (Boston)	$11.250	$2.125	$0.000	−81%
42	**Peregrine Entertainment** (Los Angeles)	$9.000	$1.750	$0.000	−81%
43	**American Learning** (Chicago)	$9.000	$1.750	$0.000	−81%
44	**Defiance Precision Products** (Defiance, Ohio)	$6.250	$1.250	$0.000	−80%
45	**Telecalc** (Bellevue, Wash.)	$5.000	$1.000	$0.000	−80%
46	**Frank B. Hall** (Briarcliff Manor, N.Y.)	$14.250	$2.875	$0.000	−80%
47	**First RepublicBank** (Dallas)	$19.000	$3.750	$0.750	−80%
48	**Transnational Industries** (New York City)	$6.000	$1.250	$0.000	−79%
49	**Discovery Associates** (Encino, Calif.)	$5.375	$1.125	$0.000	−79%
50	**Viratek** (Costa Mesa, Calif.)	$63.000	$13.250	$0.000	−79%



DEALS OF THE YEAR

It took a stock market debacle to slow the frantic pace of U.S. dealmakers in 1987. Busiest were investment firms that devised new takeover defenses—such as piling up corporate debt—and arranged a slew of foreign takeovers of U.S. companies.

■ *by William E. Sheeline*

LIKE A CLOUDBURST at an outdoor auction, the stock market crash threw corporate mergers, buybacks, and financings into temporary disarray. So brisk was the activity up to Black Monday, however, that the total value of the 50 biggest deals consummated in 1987 came to $92 billion—not far from 1985's record $94.6 billion. Two groups dominated the game: the architects of leverage and British acquirers drawn across the Atlantic by the discounted dollar.

A glance at the top ten deals tells it all. Five were leveraged buyouts and three were purchases of U.S. enterprises by overseas buyers, two of them British. In only one leading deal did two American companies embrace in a merger.

Why so few friendly combinations among the natives? One reason was the overheated stock market before October 19, which pushed stock prices higher than many would-be suitors were willing to pay. Predators circled a number of big targets, however, inspiring investment banks to engineer defensive buyouts and recapitalizations. Increasingly investment firms functioned as merchant bankers, making temporary bridge loans or winding up with a piece of the company. The financial houses, says merger chief Eric Gleacher of Morgan Stanley, "could put together all elements of a deal readily. The price was high, but the cost of money was low."

Owens-Illinois, the bottle maker, went private in one of the year's first big leveraged buyouts (deal No. 3). Kohlberg Kravis Roberts played the role not of ally but of not-too-friendly pursuer. Merrill Lynch Capital Partners stepped in to take automotive parts giant Borg-Warner private (No. 2) after raider Irwin Jacobs put it in play and Samuel Heyman of GAF made a run. Morgan Stanley came to the rescue of Burlington Industries (No. 9), the target of a takeover attempt by Asher Edelman and Dominion Textile.

REPORTER ASSOCIATE *Edward Prewitt*

Many companies stayed public and independent, but only by leveraging their balance sheets to make them less enticing to the sharks. Newmont Mining eluded T. Boone Pickens after Consolidated Gold Fields increased its stake to 49.7% in a stock-buying binge. Then Newmont paid out more than $2 billion in a special dividend to stockholders (No. 11), allowing Consolidated to recoup most of its money. Harcourt Brace Jovanovich ducked Britain's publishing czar Robert Maxwell by issuing debt and passing out preferred stock and a generous dividend (No. 12). Goodyear (No. 13) and GenCorp (No. 21) both tendered for their own stock in buybacks designed to raise the proportion of debt.

Meanwhile, the Redcoats were everywhere. British Petroleum, which already controlled Standard Oil, moved quickly in April to acquire the remaining 45% of this onetime bastion of John D. Rockefeller's empire (No. 1). Unilever bought toiletry maker Chesebrough-Pond's (No. 5), and Blue Arrow, an upstart London headhunting concern, pounced on the much larger Manpower temporary help agency (No. 30). Hanson Trust swallowed Kidde (No. 17). And Hilton International, the hotel chain, finally found a home with Ladbroke Group (No. 43) after being passed from Transworld to UAL (a.k.a. Allegis) earlier in the year (No. 49).

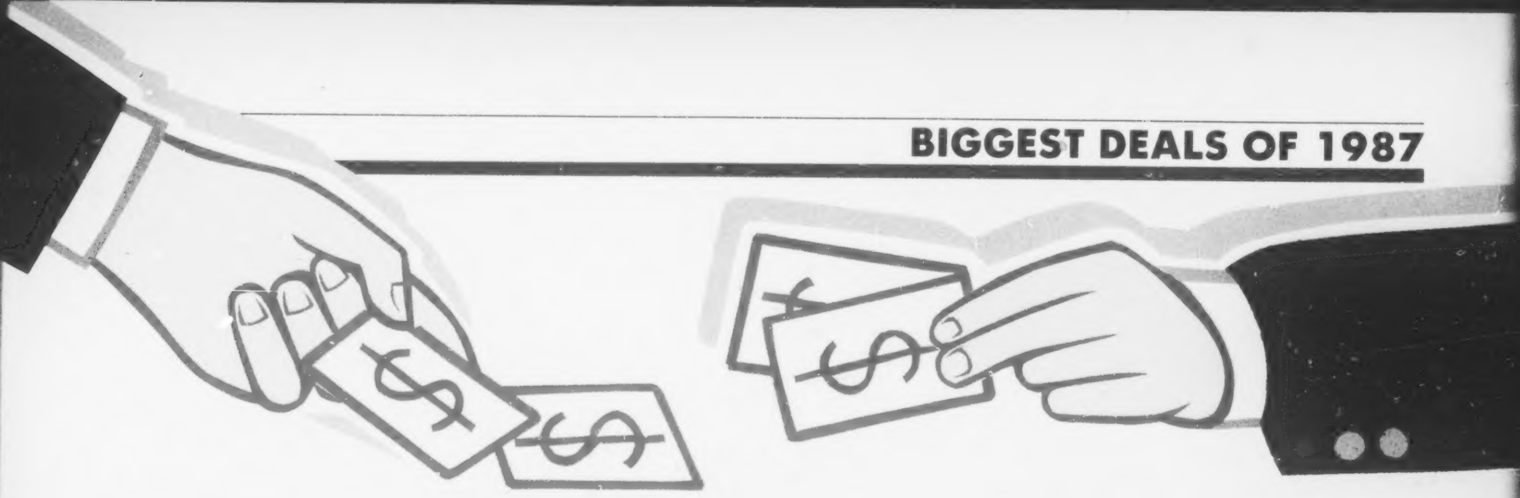
The whole deals scene changed after Black Monday. Many players withdrew until prices settled down, but some were caught in mid-deal. The British government charged ahead with the worldwide sale of its 31.5% interest in British Petroleum, leaving the four underwriters handling the U.S. portion (No. 8) with pretax losses of $75 million to $100 million each. Southland's founding family, the Thompsons, planned to finance a buyout (No. 4) with the same kind of junk bond package that had previously found ready buyers. But the offering had to be sweetened with warrants before Goldman Sachs and Salomon Brothers could bring it to market (No. 25). The long-term financing of the Kohlberg Kravis Roberts buyout of Jim Walter (No. 10) was delayed until Drexel Burnham Lambert placed junk bonds early this year.

IN THE END, 1987 was not a bad year for dealmakers' fees. Public documents and other sources show that firms took in at least $516 million in advisory fees, not counting commissions for related financing. That was below 1986 but excludes a lot of undisclosed fees on privately arranged deals.

Several big transactions are already in the works for 1988. Shearson Lehman Brothers will take over E.F. Hutton, and more commercial banks will consolidate. The Shawmut Corp. will merge with Hartford National, and Philadelphia's Fidelcor will join New Jersey's First Fidelity. The outlook for dealmakers is far from bleak. A major question, says Morgan Stanley's Gleacher, is whether junk bonds will regain their lost prominence. The other question hinges on the dollar. Foreign buyers, Wall Streeters believe, will go on an even bigger binge once it stabilizes. Says Jeffrey Rosen, head of international mergers and acquisitions at First Boston: "1988 will be the year of the foreign acquirer."

ILLUSTRATIONS BY JOHN PIRMAN

BIGGEST DEALS OF 1987



RANK		**VALUE** (000) % of book value	**TRANSACTION**	**FINANCIAL INTERMEDIARIES** (Client)	**FEE** (000)	**FEE** as % of deal
1	**BRITISH PETROLEUM acquires STANDARD OIL**	**$7,995,213** 253%	**Acquisition for cash and warrants of 45% of shares not already owned by BP, June 29**	GOLDMAN SACHS (British Petroleum)	**$8,390**	.10%
				FIRST BOSTON (Standard Oil)	**$9,900**	.12%
2	**BORG-WARNER HOLDINGS[1] acquires BORG-WARNER** (automotive parts, chemicals)	**$4,174,579** 262%	**Leveraged buyout for cash and discount debentures, July 30**	MERRILL LYNCH CAPITAL MARKETS (Borg-Warner Holdings)	**$30,000**	.72%
				FIRST BOSTON GOLDMAN SACHS (Borg-Warner)	**$10,700** **$6,715**	.26% .16%
3	**OWENS-ILLINOIS HOLDINGS[2] acquires OWENS-ILLINOIS** (glass containers, plastics)	**$3,728,748** 222%	**Leveraged buyout for cash, March 24**	KOHLBERG KRAVIS ROBERTS MORGAN STANLEY FIRST BOSTON (Owens-Illinois Holdings)	**$60,000** **$4,000** **$4,000**	1.61% .11% .11%
				DILLON REED GOLDMAN SACHS LAZARD FRERES (Owens-Illinois)	**$4,500** **$4,500** **$4,500**	.12% .12% .12%
4	**JT ACQUISITION[3] acquires SOUTHLAND** (convenience stores, dairy products)	**$3,712,105** 215%	**Leveraged buyout for cash and preferred stock, December 15**	GOLDMAN SACHS SALOMON BROTHERS (JT Acquisition)	**$12,500** **$12,500**	.34% .34%
				LAZARD FRERES (Southland)	**$5,000**	.13%
5	**UNILEVER** (food, soap) **acquires CHESEBROUGH-POND'S** (toiletries)	**$3,096,092** 294%	**Acquisition for cash, February 10**	GOLDMAN SACHS (Unilever)	**$8,000**	.26%
				SHEARSON LEHMAN BROTHERS (Chesebrough-Pond's)	**$11,000**	.32%
6	**NATIONAL AMUSEMENTS** (movie theaters) **acquires VIACOM INTERNATIONAL** (television entertainment)	**$2,937,841** 731%	**Acquisition for cash, common and preferred stock, June 9**	MERRILL LYNCH (National Amusements)	**$7,000**	.24%
				GOLDMAN SACHS (Viacom International)	**$8,000**	.27%
7	**HOECHST** (chemicals) **acquires CELANESE** (chemicals)	**$2,885,706** 302%	**Acquisition for cash, February 27**	LAZARD FRERES (Hoechst)	**$5,000**	.17%
				FIRST BOSTON (Celanese)	**$8,000**	.28%
8	**BRITISH GOVERNMENT sells American Depositary Shares of BRITISH PETROLEUM**	**$2,549,654** 156%	**U.S. portion of the British government's sale of its 31.5% interest in British Petroleum, October 30**	GOLDMAN SACHS* MORGAN STANLEY SALOMON BROTHERS SHEARSON LEHMAN BROTHERS	**$30,306**	1.19%
9	**BURLINGTON HOLDINGS[4] acquires BURLINGTON INDUSTRIES** (textiles)	**$2,497,667** 218%	**Leveraged buyout for cash, September 3**	MORGAN STANLEY (Burlington Holdings)	**$30,600**	1.23%
				FIRST BOSTON KIDDER PEABODY (Burlington Industries)	**$6,900** **$6,900**	.28% .28%

Mergers and acquisitions

Securities offerings and buybacks

* Lead manager.

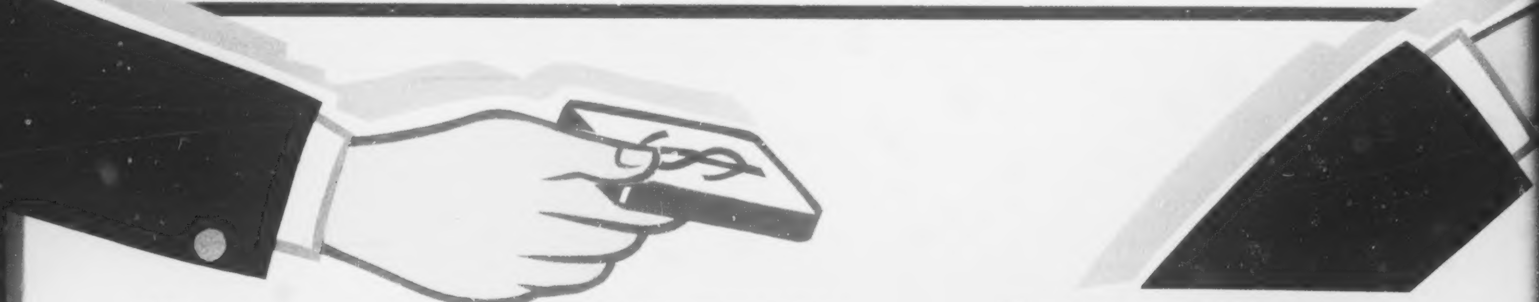
[1] Group led by Merrill Lynch Capital Partners.

[2] Group led by Kohlberg Kravis Roberts.

[3] Group formed by the Thompson family, Southland founders.

[4] Group led by Morgan Stanley.

BIGGEST DEALS OF 1987



RANK	VALUE (000) % of book value	TRANSACTION	FINANCIAL INTERMEDIARIES (Client)	FEE (000)	FEE as % of deal
10 HILLSBOROUGH HOLDINGS[5] acquires 95% of JIM WALTER CORP. (housing)	**$2,312,355** 200%	**Cash tender offer, September 18**	KOHLBERG KRAVIS ROBERTS FIRST BOSTON (Hiilsborough Holdings)	**$35,000** **$6,000**	1.51% .26%
			SHEARSON LEHMAN BROTHERS (Jim Walter Corp.)	**$8,125**	.35%
11 NEWMONT MINING pays special dividend	**$2,220,574** 128%	**Cash dividend of $33 paid to stockholders as part of $2.25 billion leveraged recapitalization to fend off takeover bid by T. Boone Pickens, October 9**	GOLDMAN SACHS KIDDER PEABODY	**N.A.** **N.A.**	– –
12 HARCOURT BRACE JOVANOVICH (publishing) **pays special dividend**	**$2,060,130** 410%	**Dividend of $40 cash and one share of 12% preferred stock to holders of common stock and convertible debentures, as part of $2.9 billion leveraged recapitalization to fend off takeover bid by Robert Maxwell, July 27**	FIRST BOSTON	**$8,500**	.41%
13 GOODYEAR TIRE & RUBBER repurchases common stock	**$2,021,788** 132%	**Cash tender offer for 40 million shares (41.3%) as part of leveraged recapitalization to fend off takeover bid by Sir James Goldsmith, January 16**	None		
14 JMB INSTITUTIONAL REALTY acquires CADILLAC FAIRVIEW (real estate)	**$1,990,116** N.A.	**Acquisition for cash, November 2**	MERRILL LYNCH (JMB Institutional Realty)	**N.A.**	–
			GOLDMAN SACHS (Cadillac Fairview)	**N.A.**	–
15 HEALTHTRUST[6] acquires 104 hospitals from HOSPITAL CORP. OF AMERICA	**$1,940,000** 128%	**Acquisition for cash, preferred stock, and warrants, September 17**	DREXEL BURNHAM LAMBERT (Healthtrust)	**N.A.**	–
			BANKERS TRUST GOLDMAN SACHS (Hospital Corp. of America)	**$5,700** **$1,500**	.29% .08%
16 SUPERMARKETS GENERAL HOLDINGS[7] acquires SUPERMARKETS GENERAL	**$1,740,746** 374%	**Leveraged buyout for cash and debentures, October 5**	MERRILL LYNCH CAPITAL MARKETS (Supermarkets General Holdings)	**$18,000**	1.03%
			SHEARSON LEHMAN BROTHERS (Supermarkets General)	**$8,100**	.47%
17 HANSON TRUST(multi-industry) **acquires KIDDE**(multi-industry)	**$1,707,831** 228%	**Acquisition for cash, warrants, and equity in a spun-off division, December 30**	ROTHSCHILD INC. (Hanson Trust)	**$8,000**	.47%
			BEAR STEARNS LAZARD FRERES (Kidde)	**$11,769** **$11,769**	.69% .69%
18 LEAR SIEGLER HOLDINGS[8] acquires LEAR SIEGLER (aerospace, automotive parts)	**$1,706,752** 297%	**Leveraged buyout for cash, February 20**	FORSTMANN LITTLE MORGAN STANLEY (Lear Siegler Holdings)	**N.A.** **N.A.**	– –
			DREXEL BURNHAM LAMBERT GOLDMAN SACHS (Lear Siegler)	**$15,000** **N.A.**	.89% –

Mergers and acquisitions

Securities offerings and buybacks

N.A. Not available.

[4] Lead manager.

[5] Group led by Kohlberg Kravis Roberts.

[6] Employee stock ownership plan.

[7] Group led by Merrill Lynch Capital Partners and Supermarkets General executives.

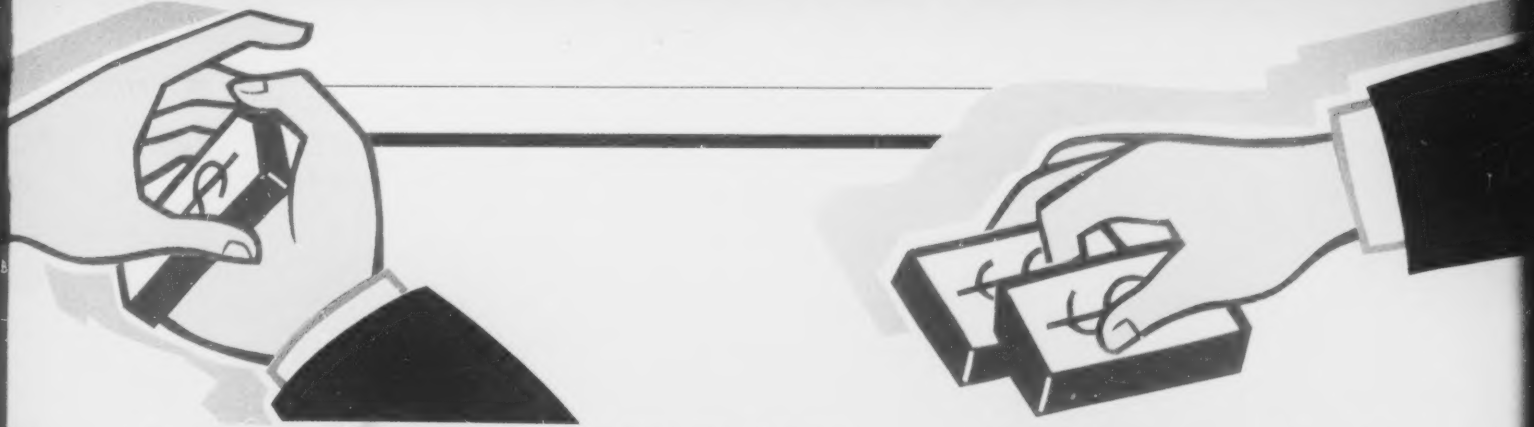
[8] Group led by Forstmann Little.

[9] General Partners included AFG Industries, Cyril Wagner Jr., and Jack E. Brown.

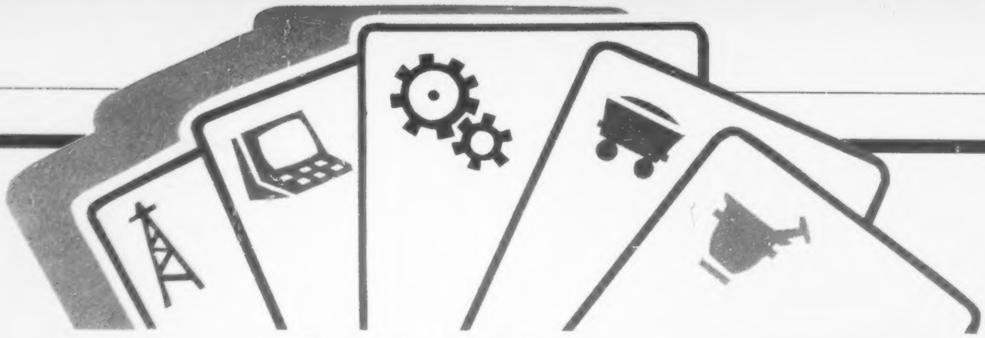
[10] Closed-end investment company.

[11] See deal No. 4.

[12] 71% controlled by Carl Lindner's American Financial Corp.



RANK		VALUE (000) % of book value	TRANSACTION	FINANCIAL INTERMEDIARIES (Client)	FEE (000)	FEE as % of deal
19	**IMPERIAL CHEMICAL INDUSTRIES acquires STAUFFER CHEMICAL from UNILEVER**	**$1,690,000** N.A.	**Acquisition for cash, July 22**	SHEARSON LEHMAN BROTHERS (Imperial Chemical Industries) GOLDMAN SACHS (Unilever)	**N.A.** **N.A.**	– –
20	**CONSOLIDATED RAIL sells common stock**	**$1,645,000**	**Initial public offering of 58.75 million shares, March 26**	GOLDMAN SACHS* FIRST BOSTON MERRILL LYNCH CAPITAL MARKETS MORGAN STANLEY SALOMON BROTHERS SHEARSON LEHMAN BROTHERS	**$69,913**	4.25%
21	**GENCORP** (tires, aerospace, broadcasting) **repurchases common stock**	**$1,625,000** 284%	**Cash tender offer for 12.5 million shares (54%) of common stock in leveraged recapitalization to fend off takeover bid by General Partners,[9] May 7**	FIRST BOSTON KIDDER PEABODY	**$6,700** **$6,700**	.41% .41%
22	**NUVEEN MUNICIPAL VALUE FUND[10] sells common stock**	**$1,580,000**	**Initial public offering of 158 million shares, June 17**	ALEX. BROWN & SONS* JOHN NUVEEN	**$102,700**	6.50%
23	**USAIR GROUP acquires PIEDMONT AVIATION**	**$1,562,888** 191%	**Acquisition for cash, November 5**	SHEARSON LEHMAN BROTHERS (USAir Group) FIRST BOSTON (Piedmont Aviation)	**$7,200** **$6,600**	.46% .42%
24	**HOLIDAY** (hotels) **pays special dividend**	**$1,553,514** 230%	**Cash dividend of $65 per share as part of $2.4 billion leveraged recapitalization, April 22**	DREXEL BURNHAM LAMBERT FIRST BOSTON	**$17,000** **$2,300**	1.09% .15%
25	**SOUTHLAND sells notes and debentures**	**$1,500,004**	**Offering of $350 million of 15.75% notes due 1997, $250 million of discount notes due 1997, $500 million of 16.75% debentures due 2002, and $400 million of 18% discount debentures due 2007 with warrants, to finance leveraged buyout,[11] December 8**	GOLDMAN SACHS* SALOMON BROTHERS	**$50,375**	3.36%
26	**E-II HOLDINGS** (household products, food specialties) **sells notes and debentures**	**$1,500,000**	**Offering of $750 million of 12.85% notes due 1997 and $750 million of 13.05% debentures due 1999, by holding company with 15 businesses spun off from Beatrice Cos., July 2**	DREXEL BURNHAM LAMBERT	**$54,375**	3.625%
27	**MONTEDISON** (chemicals) **buys 38.7% stake in HIMONT** (petrochemicals) **from HERCULES** (specialty chemicals, aerospace)	**$1,487,500** 350%	**Acquisition for cash from partner in joint venture, doubling Montedison's interest to 77%, September 25**	WERTHEIM (Montedison) FIRST BOSTON (Hercules)	**N.A.** **N.A.**	– –
28	**FMI FINANCIAL[12] acquires TAFT BROADCASTING**	**$1,467,379** 517%	**Acquisition for cash, broadcast and cable properties worth $200 million, preferred stock, and warrants, October 6**	DREXEL BURNHAM LAMBERT (FMI Financial) GOLDMAN SACHS (Taft Broadcasting)	**N.A.** **$7,400**	– .50%



RANK		VALUE (000) % of book value	TRANSACTION	FINANCIAL INTERMEDIARIES (Client)	FEE (000)	FEE as % of deal
29	**SOUTHWESTERN BELL acquires six cellular telephone systems and 29 paging operations from METROMEDIA**	**$1,380,000** N.A.	**Acquisition for cash, September 30**	SALOMON BROTHERS (Southwestern Bell)	**N.A.**	—
				MORGAN STANLEY (Metromedia)	**N.A.**	—
30	**BLUE ARROW** (business services) **acquires MANPOWER** (temporary workers)	**$1,342,165** 1,019%	**Acquisition for cash, September 15**	DILLON REED COUNTY NATWEST (Blue Arrow)	**$6,000** **$6,000**	.45% .45%
				MORGAN STANLEY (Manpower)	**N.A.**	—
31	**PARK RIDGE[13] acquires HERTZ from ALLEGIS** (airlines)	**$1,300,000** N.A.	**Acquisition for cash, December 30**	GOLDMAN SACHS (Park Ridge)	**N.A.**	—
				FIRST BOSTON (Allegis)	**N.A.**	—
31	**SCI TV[14] acquires six television stations from STORER COMMUNICATIONS**	**$1,300,000** N.A.	**Acquisition for cash, completed December 1**	GOLDMAN SACHS (SCI TV)	**N.A.**	—
				MORGAN STANLEY (Storer Communications)	**N.A.**	—
31	**DUFF & PHELPS SELECTED UTILITIES[15] sells common stock**	**$1,300,000**	**Initial public offering of 130 million shares, January 21**	MERRILL LYNCH CAPITAL MARKETS A.G. EDWARDS & SONS J.J.B. HILLIARD, W.L. LYONS	**$91,000**	7.00%
34	**SECURITY PACIFIC** (bank holding company) **acquires RAINIER BANCORP.**	**$1,230,214** 207%	**Acquisition for common stock, August 31**	FIRST BOSTON (Security Pacific)	**$3,400**	.28%
				GOLDMAN SACHS (Rainier Bancorp.)	**$5,478**	.45%
35	**OWENS-ILLINOIS sells notes and debentures**	**$1,213,304**	**Offering of $425 million of 12.25% notes due 1996, $325 million of 12.75% debentures due 1999, $293 million of 14.5% debentures due 2003, and $170 million of discount debentures due 2003 to pay off bridge loans from leveraged buyout by Owens-Illinois Holdings,[16] May 21**	MORGAN STANLEY	**$37,932**	3.13%
36	**GRAND METROPOLITAN** (hotels, wines and spirits) **acquires HEUBLEIN** (wines and spirits) **from RJR NABISCO**	**$1,200,000** N.A.	**Acquisition for cash, March 6**	MORGAN STANLEY (Grand Metropolitan)	**N.A.**	—
				DILLON REED (RJR Nabisco)	**N.A.**	—
37	**CITICORP sells common stock**	**$1,165,000** 135%	**Public offering of 20 million shares, September 17**	MERRILL LYNCH CAPITAL MARKETS* CREDIT SUISSE FIRST BOSTON DAIWA EUROPE MORGAN STANLEY S.G. WARBURG SECURITIES	**$29,200**	2.50%
38	**OCCIDENTAL PETROLEUM sells common stock**	**$1,157,475** 141%	**Public offering of 37.95 million shares to reduce debt, March 4**	DREXEL BURNHAM LAMBERT* KIDDER PEABODY SALOMON BROTHERS	**$37,950**	3.28%
39	**GREAT NORTHERN NEKOOSA** (pulp, paper) **acquires forest products division from OWENS-ILLINOIS**	**$1,150,000** N.A.	**Acquisition for cash, September 1**	SMITH BARNEY (Great Northern Nekoosa)	**N.A.**	—
				MORGAN STANLEY (Owens-Illinois)	**N.A.**	—

Mergers and acquisitions

Securities offerings and buybacks

N.A. Not available.
* Lead manager.
[13] Group led by Ford Motor and Hertz executives.
[14] Joint venture formed by Storer Communications and George N. Gillett Jr.
[15] Closed-end investment company.
[16] See deal No. 3.

RANK		VALUE (000) % of book value	TRANSACTION	FINANCIAL INTERMEDIARIES (Client)	FEE (000)	FEE as % of deal
40	**MFS MULTIMARKET INCOME TRUST**[17] **sells common stock**	$1,120,000	Initial public offering of 112 million shares, March 5	WHEAT FIRST SECURITIES* E.F. HUTTON & CO.	$67,000	6.00%
41	**CHEMICAL NEW YORK** (bank holding company) **acquires TEXAS COMMERCE BANCSHARES**	$1,111,978 96%	Acquisition for cash, common and preferred stock, and equity in a spun-off operation, May 1	MORGAN STANLEY (Chemical New York)	$4,500	.40%
				SALOMON BROTHERS (Texas Commerce Bancshares)	$6,100	.55%
42	**BOND CORP. HOLDINGS** (beer, broadcasting) **acquires 92% of G. HEILEMAN BREWING**	$1,094,383 355%	Cash tender offer, October 9	SALOMON BROTHERS OCEAN CAPITAL (Bond Corp. Holdings)	$7,500	.69%
				MERRILL LYNCH CAPITAL MARKETS (G. Heileman Brewing)	$6,875	.63%
43	**LADBROKE GROUP** (hotels, real estate) **acquires HILTON INTERNATIONAL** (hotels) **from ALLEGIS**	$1,070,000 N.A.	Acquisition for cash, October 14	MERRILL LYNCH (Ladbroke Group)	N.A.	–
				FIRST BOSTON (Allegis)	N.A.	–
44	**CENTERIOR ENERGY** (electric utility) **sells its portion of a power plant to private investors**	$1,023,600	Sale, with 30-year leaseback, of Centerior's 32.3% stake in coal-burning Bruce Mansfield plant, September 30	MORGAN STANLEY	N.A.	–
45	**ARGYLL GROUP** (supermarkets) **acquires UNITED KINGDOM division of SAFEWAY STORES**	$1,015,256 N.A.	Acquisition for cash, February 20	FIRST BOSTON SAMUEL MONTAGU (Argyll Group)	N.A. N.A.	– –
				MORGAN STANLEY (Safeway Stores)	N.A.	–
46	**BURLINGTON HOLDINGS sells notes and debentures**	$1,011,642	Offering of $310 million of 13.875% notes due 1996, $225 million of 14.25% debentures due 1999, $187 million of discount debentures due 2003, and $290 million of 15.25% debentures due 2003, to repay bridge loans used to finance leveraged buyout,[18] September 23	MORGAN STANLEY	$35,407	3.50%
47	**HARCOURT BRACE JOVANOVICH sells debentures**	$1,000,000	Offering of $500 million of 13.75% debentures due 1999, $250 million of 14.75% discount debentures due 2002, and $250 million of pay-in-kind debentures due 2002 to finance leveraged recapitalization,[19] September 18	FIRST BOSTON	$35,000	3.50%
48	**TLC GROUP** (investments) **acquires BEATRICE INTERNATIONAL FOOD from BEATRICE COS.**	$985,000 N.A.	Acquisition for cash, December 1	DREXEL BURNHAM LAMBERT (TLC Group)	N.A.	–
				MORGAN STANLEY (Beatrice Cos.)	N.A.	–
49	**UAL acquires HILTON INTERNATIONAL** (hotels) **from TRANSWORLD**	$977,482 N.A.	Acquisition for cash, March 31	MORGAN STANLEY (UAL)	N.A.	–
				FIRST BOSTON (Transworld)	N.A.	–
50	**CAIN CHEMICAL acquires seven petrochemical plants**	$956,000 N.A.	Creation of new company through acquisition of plants owned by four companies[20] for cash, completed July 7	STERLING GROUP	$10,000	1.05%

Mergers and acquisitions

Securities offerings and buybacks

N.A. Not available.
* Lead manager.
[17] Closed-end investment company.
[18] See deal No. 9.
[19] See deal No. 12.
[20] Du Pont, Corpus Christi Petrochemical, PPG Industries, ICI.

EXPLANATORY NOTES

Deals eligible for the list include:

1. U.S. public offerings of securities (except short-term securities) by domestic and foreign corporations issued under a single prospectus or offering circular.
2. Cash tender offers by domestic corporations or by foreign corporations tendering in the U.S., including those of companies buying in their own securities.
3. Mergers or acquisitions in which the buyer or seller is a U.S. company or part of one. To be eligible, offerings must be effective in 1987 and tender offers must have expired during the year. Mergers and acquisitions are eligible if legally closed during the year or, when not legally closed, if the prospective buyer has paid a portion of the purchase price in cash during the year.

The list excludes short-term financings, government securities, routine debt offerings by financial companies, repackagings of mortgage and other debt, and financings other than public offerings—such as bank borrowings and private placements.

VALUE OF DEAL

Debt assumed in an acquisition is not included in the price. Amounts for cash offerings are the total amounts raised; for tenders the total amount paid. All securities issued in acquisitions or mergers are valued at the market price on the date of closing. When two companies merge through an exchange of stock to form a new company, the company whose stockholders received the larger share of the new company is treated as the buyer, and only those shares issued to stockholders of the small company are valued.

PERCENT OF BOOK VALUE

Book value calculations indicate the price paid (or amount of equity capital raised) per share as a percentage of the shareholders' equity per share of the acquired company or issuer at the end of the last quarter preceding the transaction.

TRANSACTION

Dates under this heading are effective dates for offerings, expiration dates for tenders, and closing dates for acquisitions and mergers.

FINANCIAL INTERMEDIARIES

For underwritten public offerings, the co-managers are listed and the lead manager is indicated by an asterisk. In the case of acquisitions and mergers, the intermediaries are typically investment banking firms that assisted in the transaction.

FEE

The figures represent the amounts charged by the financial intermediaries assisting in the deals. In underwritings, part of the fee is paid to other members of the underwriting syndicate or to dealers other than the co-managers. In mergers and acquisitions, fees paid for financing services are excluded, when possible. F

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HOW TO SMARTEN UP THE SCHOOLS

Will the education crisis torpedo U.S. economic preeminence? Business leaders, stuck with undereducated workers, fear it might. But new reforms can save the day. ■ *by Myron Magnet*

SO IGNORANT and benighted are many young recruits to the U.S. work force that one executive after another has recoiled in horror, gasping with astonishment. *These* are the troops we're supposed to win the global competition with? How can such a work force dominate the knowledge-intensive industries where the future will be made? What use are modern management techniques that draw on the worker's talents and initiative when he has no dogged, practical Yankee ingenuity to tap? And if two of every five new jobs that the Labor Department expects to be created by the turn of the century will call for more than basic skills, where will the ten million qualified workers come from to fill them? Presumably not all from Hong Kong.

Little wonder that many executives are joining the education reform movement sweeping America. They fear that if we can't count on public schools to produce workers who can read, think, calculate, and communicate, we can kiss our economic preeminence goodbye.

The failure of U.S. public education from kindergarten through high school is vast and ominous. Its most notorious measure is the plunge in College Board test performance. Combined scores on the verbal and math exams fell almost yearly from 980 points out of a possible 1600 in 1963 to a nadir of 890 in 1980, before gradually recovering to 906 by 1986. On another series of national tests, science performance of 9-, 13-, and 17-year-olds worsened steadily from 1970 to 1982, the last year for which data are available. Math performance by 17-year-olds has also deteriorated.

Comparison with other nations disheartens. U.S. eighth-graders on an international math test in 1982 answered an average of only 46% of the questions correctly, compared with top-scoring Japan's 64%. The American kids couldn't even top the average score (52%) for the 11 competing nations. Worse, the top 5% of the U.S. 12th-graders who took international calculus and algebra tests in 1982 came in dead last among the top 12th-graders of nine developed countries, squelched not only by first-ranked Japan but also by Finland, New Zealand, Hungary, and others. That 5% is the *crème de la crème*, since few enough U.S. high school seniors take advanced math at all. Contends University of Illinois education professor Herbert J. Walberg: "People often say that our best and brightest can compare with Japan's best and brightest—who only memorize. But it's simply not true."

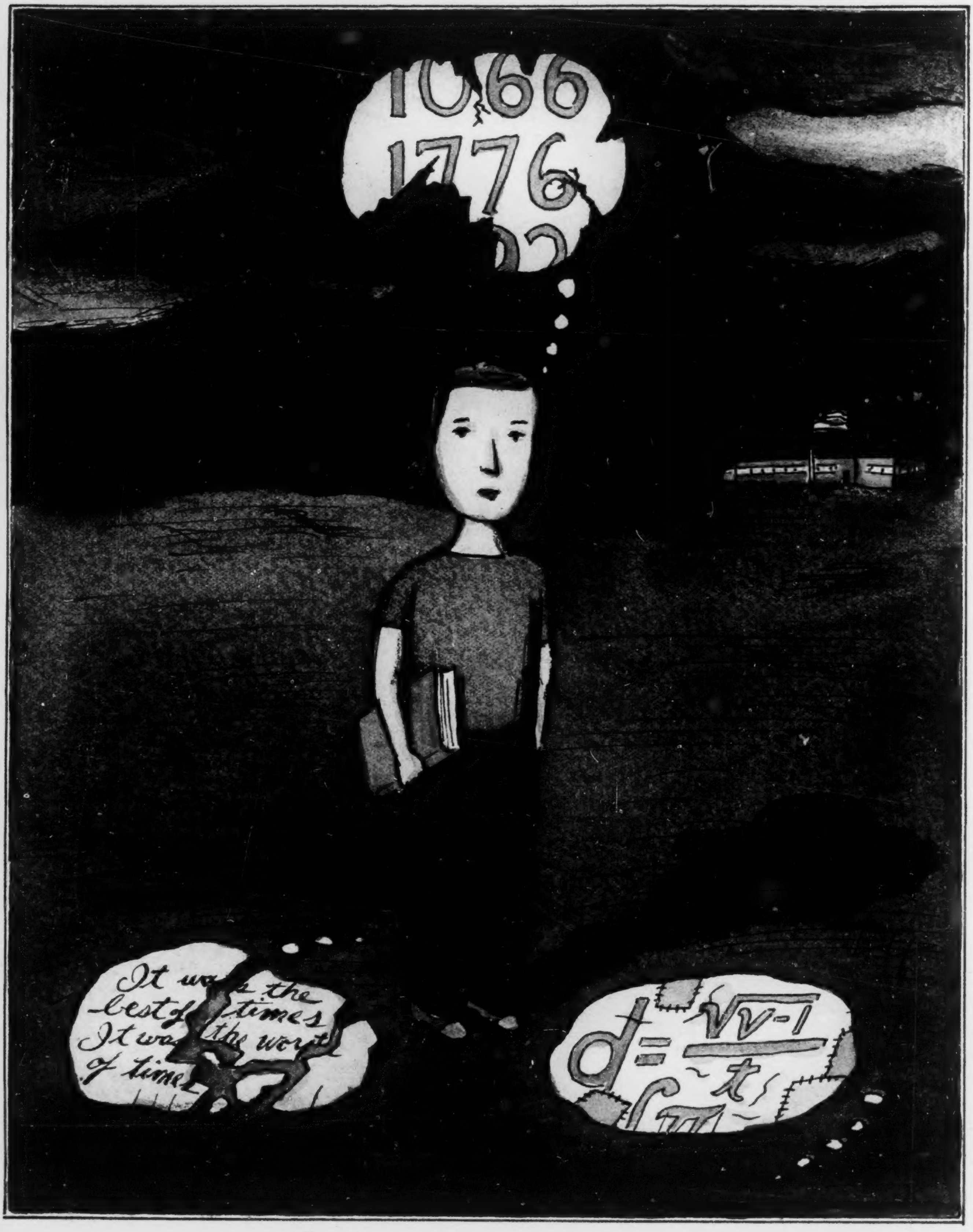
How literate are American students—not in the sense of being able to declaim Shakespeare or write like George Will, but rather being able to understand an instruction manual or compose a comprehensible memo for the suggestion box? A congressionally mandated study found in 1984 that fewer than a fifth of approximately 2,000 11th-graders could adequately write a note applying for a summer job at a swimming pool. The average 11th-grader, who only just made it into the realm of meaningful discourse, couldn't do a wide range of writing tasks well enough to ensure he would be understood.

Not surprisingly, average young adults are weak readers and reasoners too—but the scope of what they can't do takes your breath away. Of 23,000 young adults who took a simple qualifying exam for entry-level jobs at New York Telephone, 84% flunked. A government-sponsored study estimated that only 37% of the 21- to 25-year-olds tested could be counted on to comprehend material as complex as a New York *Times* article on the downing of KAL Flight 007. Just 38% could dependably carry out such tasks as using a chart to pick the right grade of sandpaper or figuring their change from $3 if they had a 60-cent cup of soup and a $1.95 sandwich. Don't expect more than one young adult in five to read a schedule well enough to say when a bus will reach the terminal.

Reform leaders—executives, governors, educators, and Secretary of Education William J. Bennett and his staff—are worried not just because many young Americans lack the basic skills needed to build quality cars or even run cash registers. Many new graduates also lack a solid core of the knowledge that makes America work as a country, that common culture that turns a pluralistic hodgepodge into a unified nation without depriving anyone of his distinctive identity. They lack that modicum of political judgment, based on at least a smattering of history, that makes democracy authentic and not a masquerade. Missing too is the historical and literary knowledge that shows the vastness and variety of human aspiration and achievement, strengthening character and values and enlarging one's sense of the possibilities and worth of one's life.

HOW MUCH is missing grows dismayingly clear from a recent influential book, *What Do Our 17-Year-Olds Know?* by assistant secretary of education Chester E. Finn Jr. and Columbia Teachers College professor Diane Ravitch. Based on tests of a representative national sample of 8,000 17-year-olds, the book reports that fewer than a third of these high school seniors knew in which half-century the Civil War occurred, or what the Magna Carta is or the Reformation was, or that the Declaration of Independence is the document that marked the separation of the colonies from Britain, or that Lincoln wrote the Emancipation Proclamation. A third of them—this is not a joke—didn't know that Columbus discovered America before 1750 or what *Brown v. Board of Education* was about. A third couldn't recognize the best-known passage from either the Constitution or the Declara-

REPORTER ASSOCIATE *Rosalind Klein Berlin*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It was the best of times It was the worst of times
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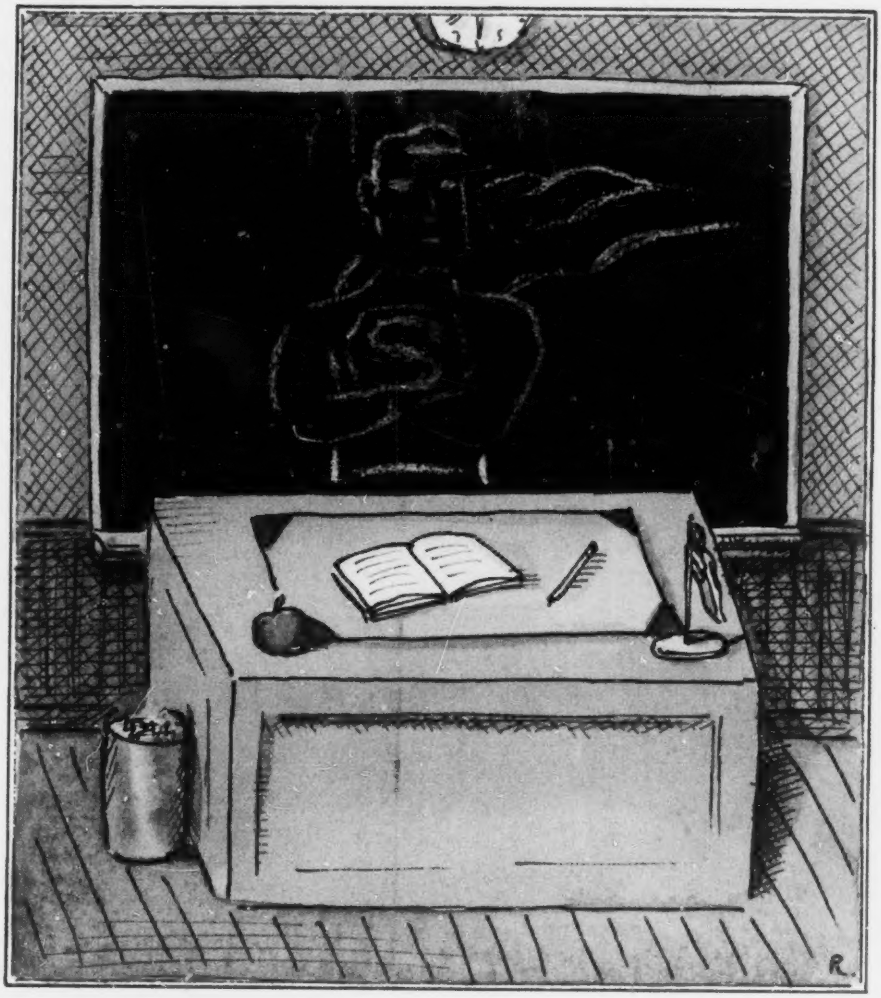
The American Pupil, 1988

ILLUSTRATIONS BY MARC ROSENTHAL



Wanted: High-powered teachers

> Just over half the 17-year-olds knew that Stalin led Russia in World War II and—wait for it—that Russia did not invade Israel during that conflict.

tion of Independence. Just over half knew that Stalin led Russia in World War II and—wait for it—that Russia did not invade Israel during that conflict.

Literature questions uncovered a vaster wasteland of ignorance. For these kids, the modern novel is deader than Marley's ghost: Fewer than one 17-year-old scholar in five could match Dostoevski or Conrad or James Joyce with appropriate book titles, and Hemingway and D. H. Lawrence fared little better. Since each question carried four possible answers—and "I don't know" was not among them—this is a worse result than random guessing would produce and suggests an almost militant ignorance. Fewer than half the students knew that Byron, Keats, and Wordsworth were poets.

More happily, the average student scored 68% on the Shakespeare questions and 67% on the Bible ones—poor enough, but passing grades compared with a flunking average for the tests as a whole. As for the Greek myths also central to our cultural heritage, just over half the students knew who Oedipus was or what an Achilles' heel is. Fewer than half could identify Don Quixote or the main theme of *Walden* or the author of a well-worn pair of Poor Richard's maxims.

How did America come to commit "unthinking, unilateral educational disarmament," as the Department of Education's attention-grabbing *Nation at Risk* report termed it? To begin, blame that tattered orthodoxy, "progressive" education. Repeatedly discredited, it nevertheless doesn't die, thanks primarily to the schools of education that are its life-support apparatus. Whatever freshness might once have sparkled in its child-centered approach, its commitment to social utility and "effective living," its rejection of the tyrannies of facts and memorization, of pressure and competitiveness, that freshness has long since turned to stone.

Just one example of the aridity: the "expanding environments" social studies curriculum most schools use from kindergarten through the third grade. Proceeding like those addresses young children write that move from "Mary Jones, Elm Street" to "U.S.A., the Earth, the Universe," this program starts with the child as a family member and moves through his membership in a school, neighborhood, community, even (inevitably) a global community. The four-year sequence, says education professor Ravitch, "is virtually content-free."

For children living at the end of the 20th century—viewers of TV news, observers of modern life, some even visitors to outer space via *Star Wars* or *E.T.* on the VCR—the triviality of this curriculum anesthetizes the mind. "You belong to a family," explains a popular, representatively vacuous first-grade text analyzed by University of Georgia education professors A. Guy Larkins and Michael L. Hawkins. "Some families have two parents ... Families do things together." Ditto for families in Canada, England, and Japan—the global approach, you see, based on the belief that if we all stress the many things we have in common instead of our supposedly unimportant differences and conflicts, there would be no wars.

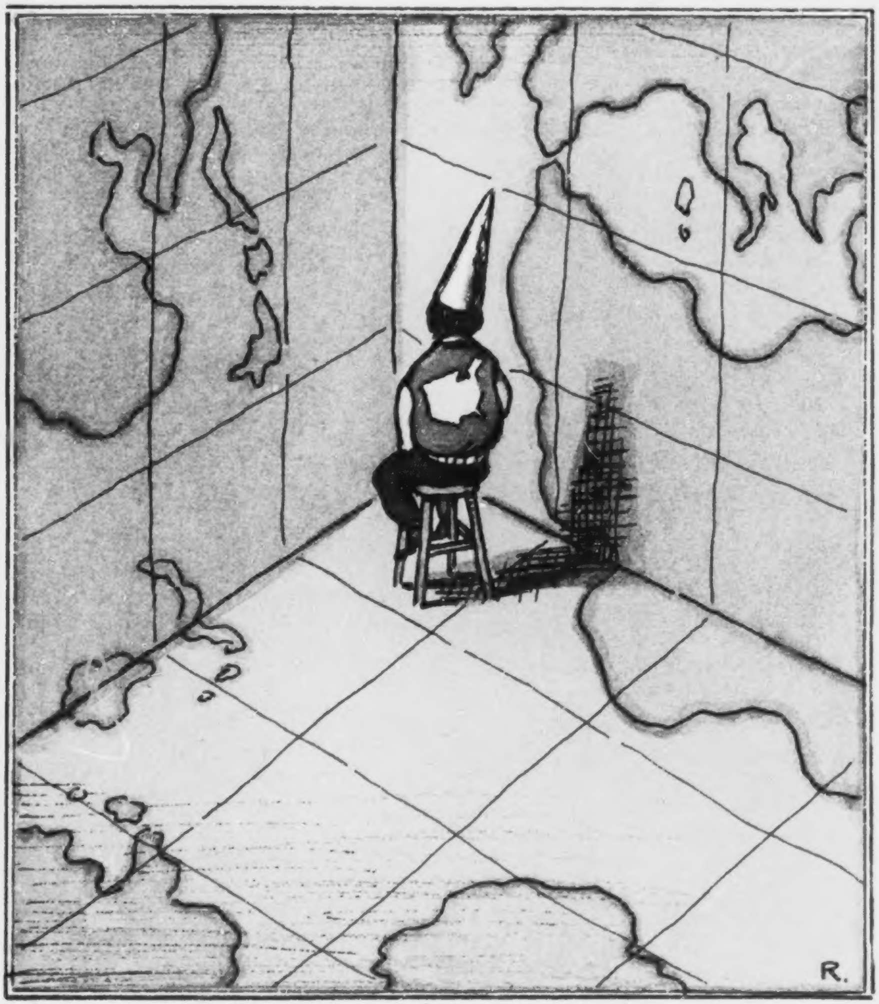
Other equally empty textbooks add that children have birthdays, birthdays are fun, and American Indians and Chinese people have them too. Third-graders—these are 8-year-olds—soporifically discover that "all communities have homes . . . buildings where people work, play, learn, and worship . . . parks where people go to have fun . . .

stores where people shop . . . roads." All four grades learn how milk gets from the cow to the kitchen, each time with the same numbing simple-mindedness. When Benjamin Franklin appears in one book, it is as a Philadelphia post-office improver and college and library founder. Children aren't told he was a diplomat and nation builder, community roles evidently too heady and interesting for the environment expanders who compiled this text.

Obvious, superficial, and unfailingly boring, the Georgia professors judge, these wan texts utterly displaced red-blooded fare that put muscle on children's minds and imaginations—Greek myths, Robinson Crusoe, stories of national heroes like Washington and Lincoln, of Pilgrims, Indians, and pioneers, of heroes of legend and history from Moses and Ulysses to King Arthur and Joan of Arc. Says Diane Ravitch of this older curriculum: "Children *enjoy* it. They learn painlessly when their lively minds and their sense of romance and adventure are engaged." And they learn something other than that school is dumb.

The progressive preference for utility and "effective living" over the inspiring and instructive richness of our cultural heritage works its way all through the curriculum and powerfully shapes what high-schoolers learn, or don't learn. These days cooking and driving courses count as much toward a high school diploma as English, history, or science courses. While it's fine to teach kids to cook and drive, 13 states let high-schoolers earn at least half their graduation credits from electives like these or like Bachelor Living, where presumably they can learn condom etiquette and that communities have singles bars.

Though progressive education has been doing its work for more than 60 years, it took the upheavals of the Sixties and early Seventies to exaggerate all its tendencies and hasten the evacuation of learning from the schools. A revealing case in point: the trivialization of American history textbooks. While schoolbook publishers are used to dancing tactfully among the sometimes contradictory demands of text-buying authorities wedded to fundamentalism or secular humanism or the free market, the contentions of the Sixties overwhelmed their suavity. That became clear in a report of an expert panel sponsored by the New York–based Educational Excellence Network.



Maybe the greatest,
but not the best educated

These days cooking and driving courses count as much toward a high school diploma as English, history, or science.

With blacks, Hispanics, American Indians, other ethnic groups, feminists, homosexuals, and nuclear disarmers all clamoring for due mention of the dignity of their accomplishment or injustice of their suffering, history books have resorted to what the report calls "a kind of textual affirmative action." This often crowds out the more important parts of the story and turns texts into dead catalogues of disjointed facts or "distort[s] in order to mention and appease." In the pictures in one leading high school text, the report says, "Texas cowboys, World War I soldiers, and Civilian Conservation Corps surveyors are represented [only] by blacks. In its index, Women's Rights is a longer entry than the Revolutionary War."

Since such texts must not offend interest groups, you can guess how forceful the writing is. Deadly too is that the committees that write these books prefer thinking sociologically about communities and social classes rather than thinking in the traditional historical terms of stories filled with passion and conflict and peopled by vivid characters whose bold or devious or wise actions change the world. So much for drama. Since the texts mustn't use too difficult a vocabulary or carry too heavy a "concept load," they end up even more vapid and colorless.

Progressive education has always tried to replace teacher authoritarianism with teacher-pupil cooperation. But the Sixties' shakeup of education reduced the distance between teacher and pupil so drastically that it fatally subverted teacher authority. Teachers lost confidence that they really knew what pupils should learn, even that they as teachers had something worth teaching. Popular songs might well contain as much wisdom and poetry as Melville, went the cant of the day, and spontaneity might be more valuable than knowledge.

At the college level, where this tendency was most pronounced, the consequence was a reduction in course requirements and admission requirements. High schools in turn reduced graduation requirements, figuring that if colleges didn't require applicants to know foreign languages or sciences for admission, maybe they weren't important. Trivial electives and texts crowded out solid fare in the name of a specious relevance, so that today, 20 years later, students read a biography of onetime teen tennis player Tracy Austin, say, instead of the life of Marie Curie or Pocahontas.

Required homework went the way of required courses. The proportion of high school seniors who did at least five hours a week declined 30% between 1972 and 1980. Says assistant education secretary Finn: "Kids tend to learn that which they study, and to learn it in proportion to the amount of study they do—and up to the level they are obliged to learn it to by the adults in their lives." Not only does less homework produce less learning, but it also fails to instill the work ethic that the U.S. economy needs. Even as teachers were demanding less from students in every way, they were inflating grades, further eroding the incentive to work hard.

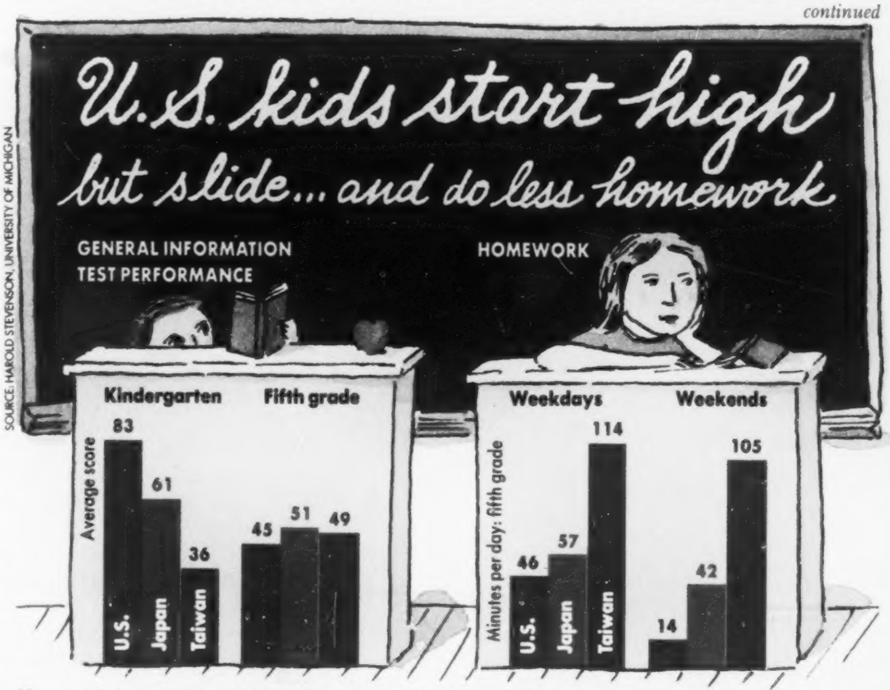
Such authority as the schools left themselves the courts helped take away. Principals cannot suspend pupils without a formal hearing, the Supreme Court ruled in 1975, invoking the 14th Amendment's due-process guarantee and thereby turning school discipline from an extension of parental discipline into a quasi-adversarial proceeding on the legal model. Weeks later the Court subverted school order further by ruling that pupils could sue individual teachers and principals for damages for infringing their civil rights. How much do you want to discipline a troublemaker who can make a federal case of it?

> Views differ on whether busing is sound social policy, but it is hard to disagree that its educational costs have been high.

The Court broadly impaired learning with the forced busing that followed its 1971 *Swann* ruling. Views differ on whether busing is sound social policy, but it is hard to disagree that its educational costs have been high. In many districts race relations for years became at least as much the focus of school life as education. Angry mobs, frightened or hostile children, and policemen in school hallways did not foster an atmosphere conducive to learning. For a federal judge like W. Arthur Garrity Jr., who ran the Boston school system like a commissar for 11 years, the first priority could not be education. The white flight that busing accelerated often deprived urban schools of the most motivated pupils, whose mainstream values helped set a tone of order and relative respect for school.

Americans like to think that schools can be used to change society, but the influence goes both ways. From the Sixties onward vast social and cultural changes twisted schools out of shape. Families grew unstable, what with the increasing divorce rate and, in a small sliver of society, an emerging underclass pathology. Says University of Chicago sociologist James Coleman, author of the well-known 1966 Coleman Report on education: "Schools were never successful with children from families who didn't have a high level of educational aspirations and strong support for those aspirations." Faced with an influx of children from weak families, schools reduced their demands. They did so especially since the weak families included minority families whose advocates persuaded courts that the high failure and suspension rates among their children were evidence not of pupil shortcomings but of discrimination. Public education reduced itself to the lowest common denominator. Coleman's conclusion: "Weak families have created weak schools, which are not good for kids from strong families." Nor are they good for children from weak families, who arguably need education the most.

continued



SOURCE: HAROLD STEVENSON, UNIVERSITY OF MICHIGAN

Homework counts. Assistant secretary of education Chester Finn Jr. notes that children learn in proportion to the amount they study—so those fifth-grade test results are no surprise. The scant time U.S. kids are required to spend on homework doesn't do much to build a work ethic, either.

If U.S. education were like a run-down factory that required only a little sprucing up and modernizing, the situation wouldn't be so troubling. Instead, with the notable exception of some suburban schools and urban magnet schools, it more resembles an overgrown garden where weeds are beginning to choke out the wholesome growth and supplant it. The forces that have devastated traditional schooling have left not a vacuum but something like a new American culture that is disquietingly resistant to learning.

This culture is producing a new democratic character, minutely anatomized in Allan Bloom's *The Closing of the American Mind*, whose runaway sales attest to the surge of national concern about the bankruptcy of education. At the center of this distinctive modern American personality is a profound belief that truth and values are relative and that therefore the proper attitude toward the world is an indiscriminate openness, a willingness to accept without judging. Students learn this in part from an education whose unthinking global pluralism tells them that different cultures are all much alike deep down, that the differences don't matter, that the most divergent ways of doing and believing and valuing are equally worthy of respect. It is an openness that by making all things equal makes them equally unimportant and therefore not very interesting to learn.

Nothing else in the spirit of this age gives learning any hold on the young. They know that progress has made the past obsolete, with nothing to teach them. They are isolated in a complacent egoism fostered partly by progressive education's emphasis on the child's spontaneous feelings, partly by the emotional remoteness often engendered by the divorce of their parents or the evident impermanence of all the relationships around them, partly by an inability to attach themselves emotionally to a national community that they've been taught is no better than any other one, partly even by their omnipresent rock music's glorification of each adolescent impulse. You can certainly teach such children basics like math and science. But it will take skillful teachers, and especially teachers who are not immersed in this same culture, to get them at all fired up about the rest of our neglected cultural inheritance.

Where to start to fix this mess? The education reformers offer an array of ingenious answers, some of which have begun to sprout programs. Their first helpful idea is that everyone involved—students and especially every level of education authority—must be held accountable for student performance. This means finding out how the students really are doing and publicizing the results. Is the individual student learning what he or she is supposed to learn? Twenty-four states make sure by demanding that he or she pass a competency exam for high school graduation, and 11 states require competency exams for promotion from grade to grade. Some states are mindful that a passing grade, designed to represent minimum acceptable performance, can turn into the norm, depressing standards rather than raising them. These states keep the hurdle high.

How do the students of each school perform? Over a dozen states publish a report card that grades and compares schools, allowing taxpayers and parents to hold authorities accountable by opposing higher taxes for schools or by voting out elected administrators or by complaining to teachers and principals. In Prince George's County, Maryland, Superintendent John A. Murphy makes his 172 principals answerable for their pupils' test scores by posting in his conference room bold graphs of each school's annual scores, prominently labeled with the principal's name. Murphy's school reforms get plenty of credit for the recent economic turnaround of this racially mixed area straddling the Washington Beltway. He came into office in 1984 vowing to raise his schools' scores from the 50th percentile range nationwide to the top quarter in 1990. The goals he sets for his principals go up annually in order to meet that mark, which he thinks he will reach a year ahead of schedule.

> Everyone—students and especially every level of education authority—must be accountable for student performance.

So far, just knowing that the boss is watching has proved incentive enough. Says he: "As in any business, if you're going to measure people to see whether or not they're performing, they're going to perform—even if you can't reward them." But he already has started talking about including principals and teachers in a bonus pay plan, based—to foster teamwork within each school—on the success of a school's test scores, attendance rates, advanced course enrollment, and so on. Making each school responsible for its own results will of course require moving authority from the central school district bureaucracy to the principal, a move education reformers urge. Says William Kristol, chief of staff to Secretary of Education Bennett: "The problem now is schools are overregulated but underaccountable. We should free up the principal and then reward him if he does well and change him if he does poorly."

Accountability also extends to school boards and school superintendents, who in a handful of states can be placed under the thumb of a state monitor in case of gross incompetence. The Department of Education has been publicizing state-by-state College Board scores, often with the enthusiastic applause of governors. Says Richard P. Mills, chief education aide to New Jersey Governor Thomas Kean: "You cannot be a governor without being an education advocate right now. If you're concerned about regional development, you have to be concerned about the quality of the graduates." Governors have also realized that education is their biggest budget item, swallowing around 40% of state revenues.

You can't get far without improving the quality of teachers. Today's talented young people rarely choose the classroom as a career, especially now that smart, ambitious women are hardly restricted to traditional "women's work" like teaching. Last year's high school seniors who intended to major in education posted combined verbal and math College Board scores of 845, 61 points below the already dismal average of all seniors. Only 58% of these prospective teachers—compared with 68% of all college-bound seniors—had chosen an academic track in high school. The rest took general or vocational programs heavy in courses of the Bachelor Living ilk.

In response, New Jersey has upped admission requirements for the education programs in its state colleges, and Missouri has set up grants and loans designed to attract into teacher-training programs students with high grades and SAT scores. Dismayed by teacher certification exams that often test little more than basic literacy, the Washington-based Carnegie Forum on Education and the Economy has organized a National Board of Professional Teaching Standards, which will issue certificates to teachers who pass the rigorous tests it is now devising. Says foundation executive director Marc Tucker: "You won't need it to get a job at first, but as in every other profession, people will want a board-certified professional."

Universally contemptuous of the education major as a vapid and inadequate program, reformers agree that teachers need a four-year liberal arts education, with a major in whatever subject they plan to teach. The reformers recommend a further year or two learning teaching techniques, perhaps as an apprentice supervised by a master teacher.

New Jersey has proved that teachers educated this way can succeed resoundingly in the classroom. It hires teachers who haven't taken the usual education courses required for certification if they have a BA in the subject they want to teach, can pass the Educational Testing Service's National Teacher Exam in it, and successfully complete a year's residency, which includes a sort of pedagogical boot camp. The 800 teachers New Jersey has hired by these criteria—including retired business and military people, musicians, less well paid parochial school teachers, and recent college grads who have decided they'd like to teach—have higher SAT scores and college grades than teachers with education degrees.

Now New Jersey is trying to set up a new route to the certification of principals. Instead of three years' teaching experience and three specialized courses, you will get certified with an MBA or any master's degree in management. All you'll need to do is take a management test, go through an assessment center, and work for a year under supervision. Wall Street casualties, look across the river.

You can't attract better teachers without increasing their pay. But, says Prince George's superintendent Murphy, "taxpayers are sick and tired of giving across-the-board raises and letting those people who aren't doing the job get more and more money." After all, per-pupil education expenditures between 1950 and 1986, adjusted for inflation, more than tripled to around a breathtaking $4,000, with most of the rise coming in the period when SAT scores plummeted. But taxpayers will tolerate increased spending tied to results, like Murphy's planned performance-based bonus or like Rochester, New York's new teacher career ladder. As teachers grow in competence through four defined ranks, their pay will go up to a peak for the very best of $60,000.

Reformers like to point with fascination to the slums of Spanish Harlem, where Community School District 4 pulled itself from 32nd place out of 32 New York City school districts in test scores in 1973 to 16th today. Students reading at grade level rose from 16% to 63%. The secret: a network of elementary and junior high schools from which parents are free to choose the one they like best for their children, regardless of where they live in the district.

Each school, headed by a director without tenure, has its own distinctive twist—a focus on music or math, say, or a rigorous, traditional curriculum—and so students separate themselves into groups according to their own or their families' ambitions for their future. Each school is small enough so that students aren't anonymous. Directors of these schools make their pitches to prospective students and their parents in the spring before students enter. The market mechanism operates: Schools get better and more various by competing to offer what people want. Those that offer it successfully flourish; the others dwindle.

> Our teachers never make the most important point about education: It helps you lead a better life."

Warm fans of District 4 include some reformers who favor a voucher system for education. This would let parents send a child to either a public or an accredited *private* school, with the $4,000 or so of tax money earmarked for his education paid out accordingly. Competition would improve all the schools, these reformers say, probably correctly. The need to perform or go out of business would beat down vested interests resisting public school reform—especially the National Education Association, the largest teachers' union, which vehemently opposes merit pay, alternate teacher certification, and teacher competency testing.

But if one object of education reform is to restore a shared cultural core to Americans, the centrifugal tendency of a voucher system seems a push in the wrong direction. The system inevitably would proliferate sectarian schools and so promote separateness rather than commonality. It would be justified as a last resort only if public education were bankrupt beyond repair, or if schools bent on satisfying every interest group developed curricula that were all periphery and no core, or if children who wanted to learn were prevented from getting a decent education by a disruptive population required to attend school. Most public schools haven't reached that point, though, and the reform movement is likely to keep them from it.

A better solution is what California school authorities have been doing to the school curriculum. They have tried to come to grips with just what the core culture includes—that shared national knowledge that E. D. Hirsch Jr. defined in the title of his best-selling book, *Cultural Literacy*. The state education department has drawn up a list of a thousand mainstream books—from *Cinderella* to *Great Expectations*—that ideally children should have read or listened to between kindergarten and high school graduation. The department also has just drawn up an extensive framework for a history and social studies curriculum that will begin in kindergarten with stories about how people lived in the past and with the simplest preliminary discussions of democratic values. From grades five through 12 students will alternate each year between courses in world history and American history, moving from earliest times to the present. California's state testing program will ensure that local schools teach what these curricula prescribe.

Though the history curriculum celebrates cultural diversity, there's nothing relativistic about it; it aims to inspire a high respect for democracy. Unlike a high school in New York's Westchester County that, for fear of offending secularists, failed to tell pupils who was thanked on Thanksgiving, and defined a pilgrim as one who takes a very long journey, the California courses will deal straightforwardly with controversial or difficult issues, explaining their historical significance and outlining the current fuss over them.

Says California superintendent of education Bill Honig: "In a free country, where you have free choice, you have to choose from an educated perspective. Our teachers never make the most important point about education: It helps you lead a better life." If reformers can ensure such an education to the majority of Americans, it will be a famous victory. ■

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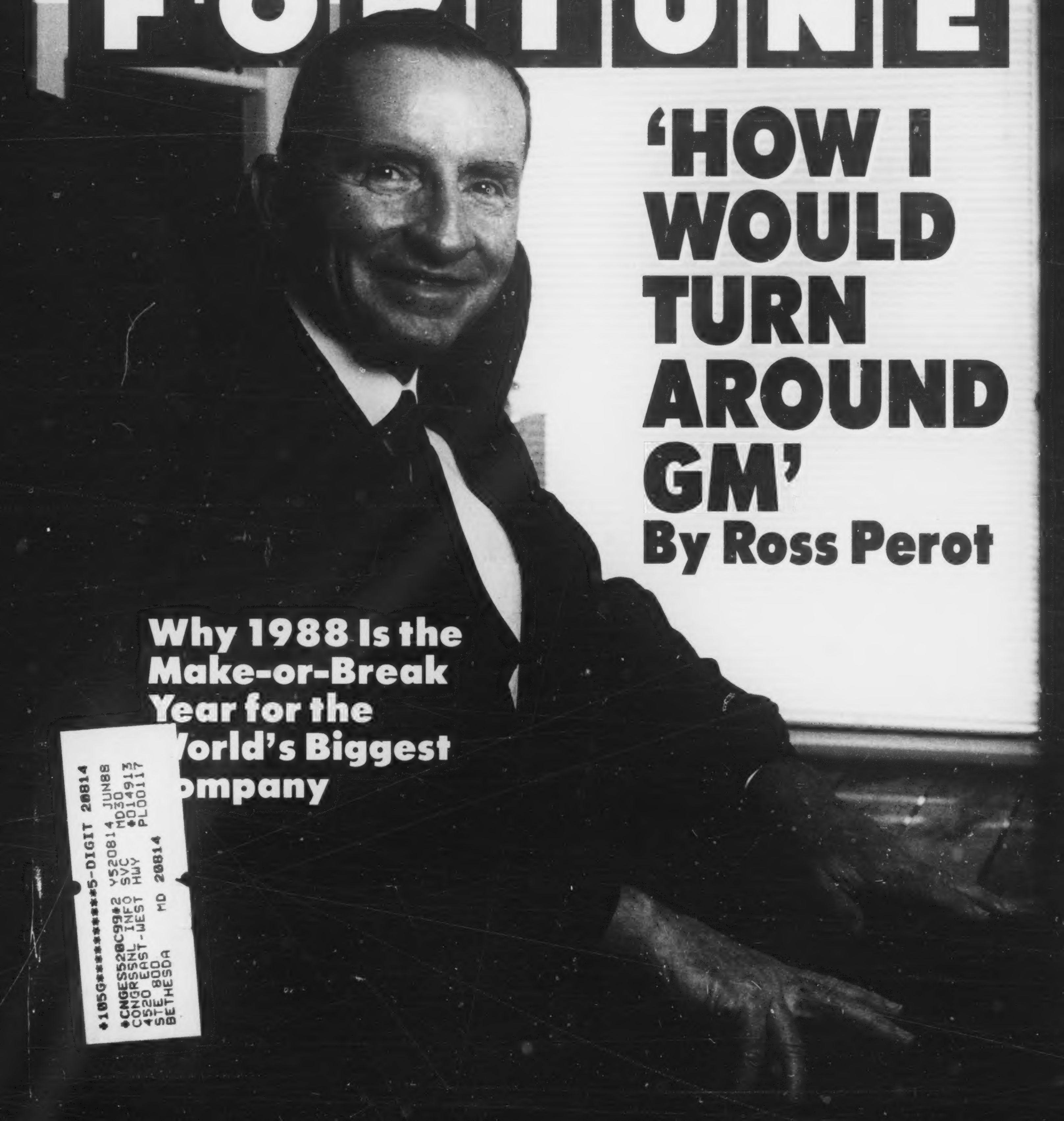

'HOW I WOULD TURN AROUND GM'

By Ross Perot

Why 1988 Is the Make-or-Break Year for the orld's Biggest ompany

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"The next President has a good chance of being clobbered."

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"He was methodical, efficient, steady, and quite composed. It was fairly impressive."

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Her vision of her future: "Two people, middle income, both of us working."

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THE EDITOR'S DESK

JAMES LUKOSKI

Tom Moore, Charles Burck, and Stephen Madden looked under the hood at GM.

JUST AFTER General Motors booted Ross Perot from its board late in 1986, FORTUNE writer Thomas Moore called the Texas billionaire and put a question: Would Perot comment on how he would run GM if given the chance? Recalls Moore: "It was clear that Perot was wound up about the subject and wanted to talk, but in the end his lawyers advised against it."

Undaunted, Moore telephoned Perot repeatedly over the past year, trying to change his mind. His persistence has paid off. In January not only did Perot agree to be interviewed for hours by Moore but, to make sure that nothing would be left out, he wrote a separate 2,500-word manifesto exclusively for FORTUNE. "I can't believe I spent two days writing this," said Perot. "The hard part was boiling it down." Every FORTUNE writer knows just what he means.

Moore, aided by reporter Stephen Madden, also spent hours interviewing Chairman Roger Smith and other high GM officers. We think that you will find our package of stories, which was edited by Charles Burck and begins on page 32, to be riveting journalism.

•

Our colleague Daniel Seligman writes this appreciation of Charles J.V. Murphy, one of FORTUNE's star writers from the 1930s through the 1970s, who I regret to tell you died recently at 83: "Charlie had a career strongly implying that journalism is a glamorous business. He was with Admiral Byrd at the South Pole, in Managua during the 1931 earthquake, and on an Egyptian steamship sunk by the Germans in 1941. He became an intimate of the Duke and Dutchess of Windsor (whose memoirs he ghosted). Murphy did the big stories: the Bay of Pigs, the King Ranch, the Mellons of Pittsburgh, and nearly 200 more. Somewhere along the way, he even found time to write a children's story, *Little Toot*, about a tugboat in New York harbor."

Marshall Loeb
MANAGING EDITOR

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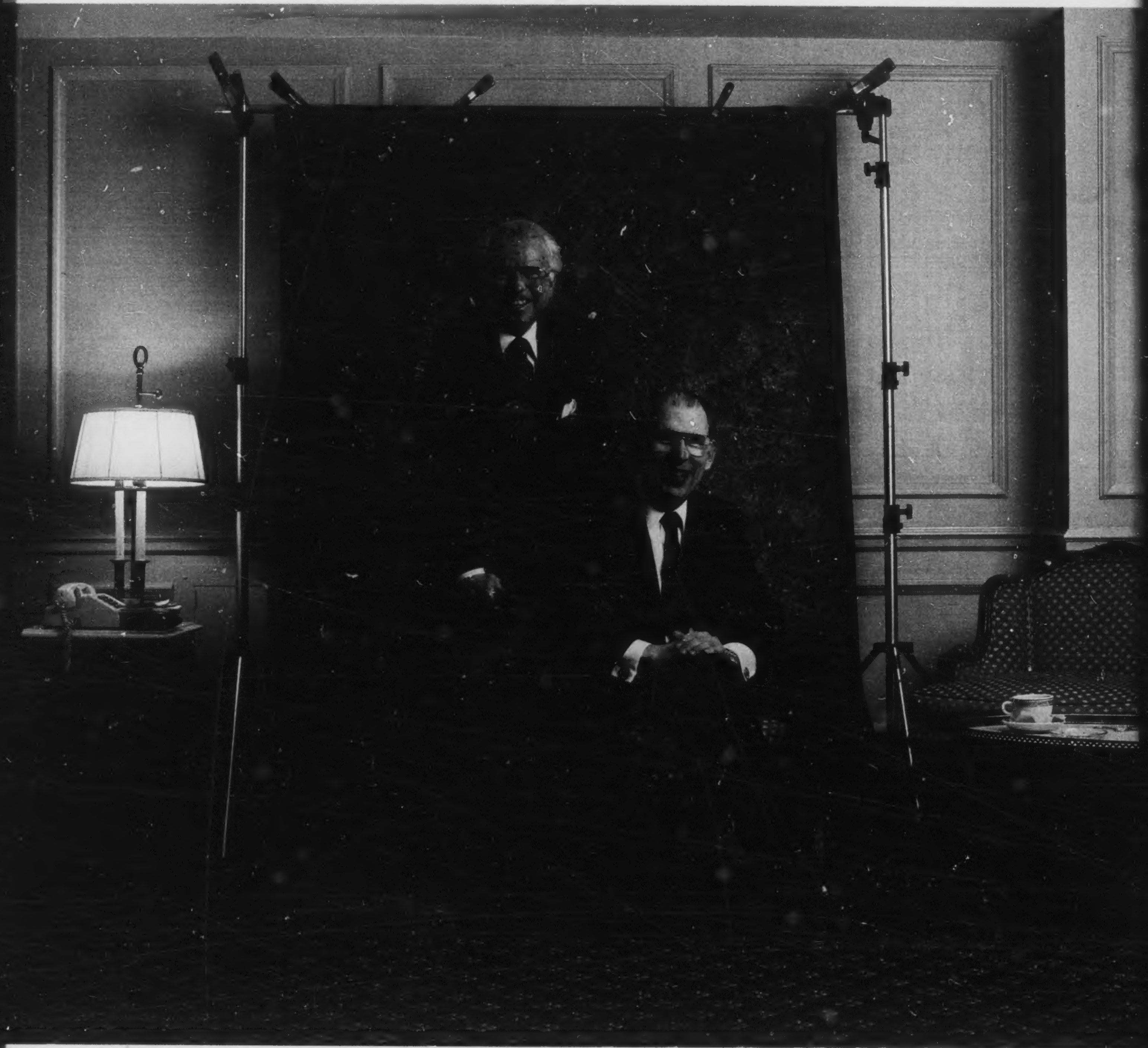
MAKE-OR-BREAK TIME



Optimism intact, *Chairman Roger B. Smith, 62, paused to pose with President Robert Stempel, 54, his most likely successor, during GM's big show.*

PHOTOGRAPHS BY LOUIS PSIHOYOS

FOR GENERAL MOTORS

It's the year of the crunch for Roger Smith's visionary plans. If GM does not pull itself together, its directors will be under fierce pressure to make radical changes in 1989. ■ *by Thomas Moore*

The show was intended to herald a new start. As its miserable sales figures for 1987 came out, General Motors staged a multimillion-dollar extravaganza at New York's Waldorf-Astoria Hotel to display current technological prowess and the futuristic cars that are being readied for the next century. Over 14,000 specially invited guests—dealers, suppliers, employees, shareholders, and journalists—gawked at an impressive array of Captain Video cars, computerized design and engineering exhibits, and a spellbinding wall of TV screens strobing out GM's new message: The company has put years of turmoil behind it, has got its engineering and its management together, has completed its big spending, and is coming on as never before.

It was a good show, but the skeptical reception it got from many shareholders and the press—who dubbed it "Rogerama"—highlights a major problem: Who believes GM these days? A year ago Chairman Roger B. Smith promised institutional shareholders that market share would rise in 1987. It fell. The year before, he promised the same illusory turnaround.

One unimpressed ex-shareholder is billionaire entrepreneur Ross Perot, 57, who spells out his prescriptions for GM beginning on page 44. "Gorilla dust" is his polite expression for the perennially optimistic statements made by Smith and other company executives. Scooping up some imaginary dirt and tossing it in the air, Perot says, "When gorillas fight, they throw dust in the air to distract one another."

Other critics speak less colorfully but no less emphatically. "So far there has been no cigar," says Harrison J. Goldin, the comptroller of New York City and trustee for about one million GM shares held by the city employees' pension fund. "Shareholders are running out of patience." So are many GM dealers as they stare at their unsold inventories of cars. Says Ron B. Tonkin, a Chevrolet megadealer in Portland, Oregon, and president-elect of the National Automobile Dealers Association: "Roger Smith may be capable, but his name is on the door and he must go before GM can expect to turn this around."

What *is* clear is that 1988 will be a pivotal year for GM. If it does not pull out of its skid and start to recapture market share, GM's management and directors will have no credibility left at all. It is difficult to imagine that the company could begin 1989 without being compelled to make radical changes—perhaps not as radical as the ones Perot calls for but at the least a complete shakeup of top management.

GM cars and dealer service has collapsed. In the 1987 national survey of customer satisfaction conducted by J.D. Power & Associates, the only GM car among the top 18 U.S. and import models was Cadillac (No. 7).

Meantime, Ford, which had its back to the wall just a few years ago, is humiliating GM. Its market share grew from 18.2% to 20% last year and though revenues are only two-thirds those of GM, its profits were higher for the second year in a row.

Signs of GM's weakening financial condition are accumulating. Moody's recently joined other credit rating services in downgrading GM debt, explaining that the company "is not likely to recover its former dominance of market share and will continue to remain behind its leading competitors in cost performance." GM's stock is trading at a price only 35% above what it was seven years ago; Ford's is up seven times.

WAYNE EASTEP

The new look: *Coupes from Buick, Pontiac, and Oldsmobile fight the look-alike syndrome.*

Even a modest turnaround would be an impressive accomplishment. Sales in 1987 tumbled by a hair-raising one million vehicles from a year earlier, to 5.2 million. The company's share of the U.S. market fell to nearly 33% in December. Only ten years ago, GM made nearly half the passenger vehicles sold in the U.S. Some security analysts—and even some GM executives—doubt the company can ever regain its past glory. They think GM should resign itself to claiming, say, a third of the U.S. market, and focus on making more money. Smith, however, remains convinced that the company will rebuild its share to 40% by 1990—*and* be more profitable.

GM, whose vertical integration once made it the most efficient carmaker in the U.S., is now the high-cost producer (see chart, page 35). Customer satisfaction with

According to Ronald Glantz, auto analyst at Montgomery Securities, at the end of the third quarter GM's cash balance—cash plus marketable securities, minus long- and short-term debt—was a negative $10.58 per share, or minus $3.34 billion. That compares with a positive $23.37 per share, or $5.95 billion, at Ford. Some security analysts worry that further deterioration in sales this year might force GM to cut its dividend in 1989. That would almost certainly lead to Smith's resignation.

GM lost its market share in a good market, but will be fighting to regain it in a much

REPORTER ASSOCIATE *Stephen J. Madden*

tougher one. Consumer spending will grow only slowly over the next year, and FORTUNE expects auto sales to slow to 14 million units, from 15.2 million last year. At the same time, domestic overcapacity is growing and could rise to as much as three million units by 1990 as foreign producers build more factories in the U.S.

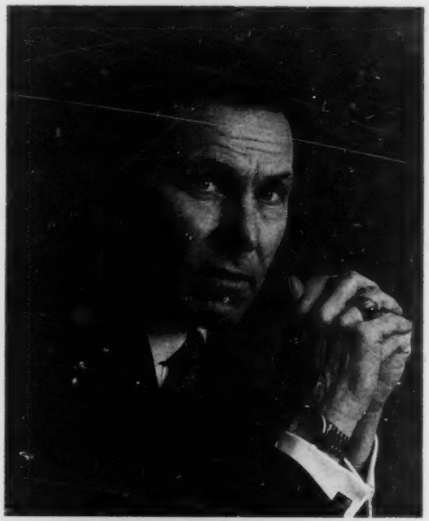
A power struggle has intensified among the top lieutenants who hope to succeed Smith—perhaps earlier than his scheduled retirement in 1990. This is further disrupting a company of nearly 800,000 employees who are still reeling from what one of them describes as "reorg after reorg."

HOW DID all this happen? In the early 1980s GM looked like the company that could do no wrong. It had beaten Ford and Chrysler to market with a lineup of fuel-efficient front-wheel-drive cars. And when oil prices fell it continued to outshine its competition because it had more big cars still in production.

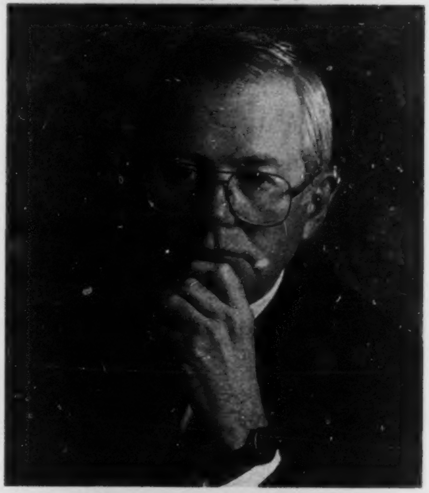
As GM's earnings picked up in 1983 and soared to record highs in 1984 and 1985, Smith threw the company into hyperdrive with a visionary plan to transform it into a 21st-century corporation. He spent over $45 billion—more than it would have cost to buy, say, Toyota—to modernize factories, revitalize car lines, and buy such high-tech companies as Perot's EDS, Hughes Aircraft, and Group Lotus, the British maker of high-performance cars.

He shook up the company with broad and frequent reorganizations, continuing a consolidation drive that began in the 1970s. He combined engineering groups, shucked off such marginally profitable businesses as heavy trucks and earthmoving equipment, and in 1984 lumped the five car divisions and Canadian activities into a small-car group (Chevrolet-Pontiac-GM of Canada) and a big-car group (Buick-Oldsmobile-Cadillac). Smith was widely hailed as a management visionary, the new Alfred P. Sloan Jr., whose organizational acumen in the 1930s made GM the world leader. In an era of managers obsessed with quarterly results, here was a man America needed, a man who dared to dream vast dreams and plan decades into the future.

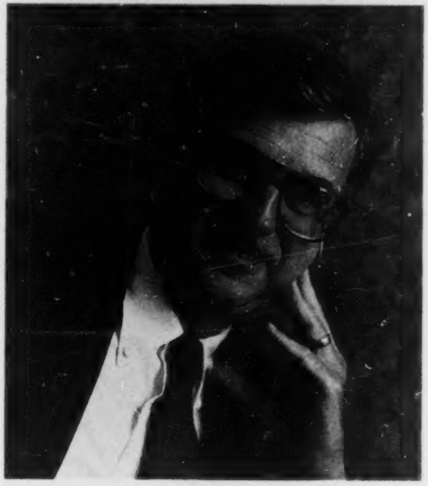
But he lost track of the short run. GM attempted so much so fast—new models, new plants, and new organizations—that it soon lost control of what it used to do well: building good cars for every pocketbook at comparatively cheap prices. Quality began to slip, styling stagnated, costs rose, and new models ran into delays.



Lloyd Reuss, *51, dapper car guy*



Elmer Johnson, *55, ambitious lawyer*



William Hoglund, *53, popular long shot*

Pretenders to the Throne

They're jockeying to succeed Roger Smith. These executives are behind the current front-runner, President Robert Stempel. Reuss is head of North American cars. Outsider Johnson, hired four years ago as general counsel, runs GM's staffs. Hoglund, who moved from finance to operations, heads Buick-Oldsmobile-Cadillac.

Confusion from the reorganization undoubtedly contributed to the problems. But Smith grossly underestimated the inertia within his company and failed to provide the leadership and clear goals that might have galvanized its 100,000-odd managers. In the best of circumstances, GM's bureaucratic structure and culture have ensured that change comes only glacially. During the profitable mid-Eighties, there especially seemed no reason to shift course. Managers lulled by success discounted the mounting evidence of trouble and dug in their heels.

"Roger defined GM's problem as inadequate capital spending over many years that could be solved with an overburden of capital spending," says Maryann Keller, auto analyst at the Furman Seltz Mager Dietz Birney securities firm. "He also knew he had to change GM's culture, but he thought it only had to be bent, not broken."

How, then, does Smith hope to fashion a new beginning? In fact, he and Robert C. Stempel, GM's president since 1987, can point to an array of accomplishments.

▸ **PRODUCT:** GM has rolled out more new models in 1987 and 1988 than in any other two-year period, says Stempel. Among them: Chevrolet's sporty Corsica and Beretta, a new full-size pickup truck, and the so-called GM-10 line of look-different midsize coupes for Buick, Oldsmobile, and Pontiac. The new Quad 4 engine is a winner (see box, page 39). The 1988 Cadillac Eldorado has grown longer than its predecessor and boasts a powerful new V-8.

Flexible automation will let the company tailor more and more models to market niches. Illustrating the possibilities, Smith refers to a recent changeover at the Linden, New Jersey, plant where GM builds the Corsica and Beretta. "On a Friday night they shut down making '88 Corsicas and Berettas. The team went in, reset the automation, and spent the weekend making pilot versions of the '89 model. On Sunday night they came back, reset the automation, and Monday they started to make '88s again. Now, that may not seem like much to you, but I can tell you we were never in our entire history able to run a pilot version of a new model on a regular production line." In the past any such changeover would have taken weeks.

▶ **QUALITY:** Smith and Stempel concede that quality has suffered in recent years but insist the problems are now behind them. Last year the company increased its warranty coverage to 60,000 miles and six years. "We looked at our product and said, 'Hey, we can do it,' " says Smith. "We have further to go in convincing our customers that it's there than some of our competitors do, but we're getting there. When quality comes through in the experience of driving the car, customers will know it."

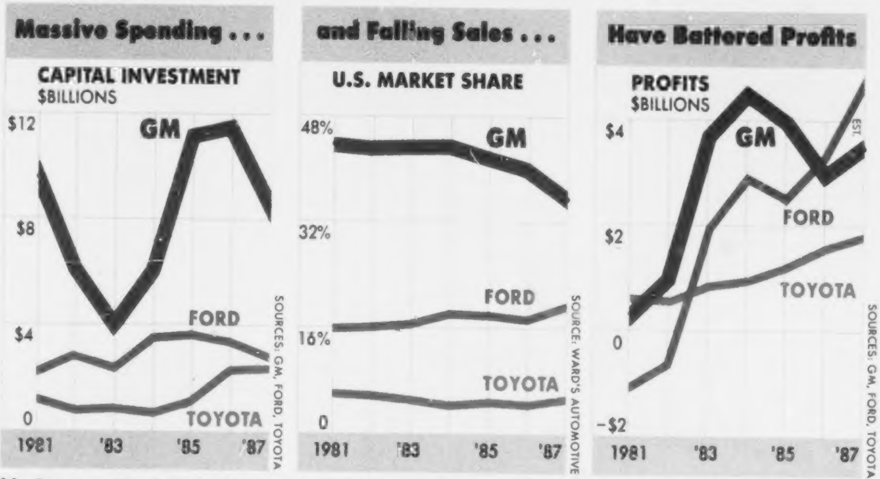
Stempel adds that GM will sell roughly 3,000 sporty Pontiac Grand Ams in Japan this year. Says he: "It was an emotional event, in the middle of Michigan, to have an American flag on the side of a car in our first shipment to Japan." He stresses that these are standard quality, not specially prepared.

▶ **COSTS:** The company has begun to tackle its outrageous overhead. It is two years ahead of schedule in its plan to cut 40,000 salaried workers from its payroll and a total of $10 billion out of costs. Smith argues that some of the company's high costs are the inevitable result of changing over from old to new organizations and systems, and will evaporate when the transitions are complete. Gains will continue to come in manufacturing costs as GM phases out older cars whose designs make truly efficient manufacturing impossible.

▶ **CAPITAL SPENDING:** One of Smith's major talking points these days is that his company has largely finished modernizing its plants, while Ford and Chrysler have much to do yet. It will cost them more, he adds. GM bought its equipment when the investment tax credit was still in place and the dollar was strong. "The competition is buying presses right now from Japan," he says. "We bought them when the yen was 220 to the dollar. Just think what those would cost you right now at 125—if you could get them."

▶ **LABOR RELATIONS:** GM's negotiations with the United Auto Workers last fall were the first in years that weren't bitterly adversarial. Indeed, both sides said at the outset they wanted to cooperate as much as possible. In the contract it signed, GM made what appears to be a wise trade-off: assuring job security to most workers in exchange for new and less restrictive work rules in the factory.

While the job guarantees may cost GM in the short run by keeping extra bodies on the payroll, it has drawn the union into a companywide dialogue on how best to organize work on the plant floor. Since the signing, GM has asked managers and workers at each plant to spend six months studying and agreeing upon work rule changes. The goal: to develop management styles that lean heavily on teamwork rather than old-fashioned authoritarianism.


Massive Spending . . .

and Falling Sales . . .

Have Battered Profits

SOURCES: GM, FORD, TOYOTA

SOURCE: WARD'S AUTOMOTIVE

SOURCES: GM, FORD, TOYOTA

No longer the leader *in profits, GM is taking its lumps from heavy spending and sagging sales. Earnings bounced back last year, but that was largely because of an accounting change.*

Such accomplishments don't translate instantly into marketplace success, however. It may take years to turn around GM's reputation for bad quality and uninspired design. Despite many improvements, just about every GM car and truck nameplate lost market share last year. The Corsicas and Berettas, which have received generally good reviews, are piling up in dealers' lots. GM sold 18,659 in December—just over half its plant capacity—and dealer inventory now extends to 100 days, 40 days more than what is considered normal. The cars actually sold seem to be cannibalizing sales of other Chevrolet models.

The High-Cost Producer

1986	GM	FORD	TOYOTA
Passenger vehicles produced per employee	11.7	16.1	57.7
Labor cost per vehicle	$4,148	$2,379	$630
Earnings per vehicle	$343	$555	$466

SOURCES: GM, FORD, TOYOTA, AUTOMOTIVE INDUSTRIES

Wrestling *with costs, GM trails the world's No. 2 and No. 3 automakers. The gap also reflects differences in integration: GM makes 70% of its own parts, Ford 50%, and Toyota about 30%.*

The Buick Regal, the first of GM's new line of distinctively different GM-10 cars, got off to a slow start last year. Sales of the new improved Cadillacs declined, even if less than other GM cars. Cadillac's Italian-designed Allante, a Mercedes-like two-seater that sells for over $55,000, has bombed.

Smith's many bold ventures into new technologies and new management techniques have so far yielded uncertain payoffs. Some have shed unexpected light on deep-seated problems. Take New United Motors Manufacturing Inc. (Nummi), GM's joint venture with Toyota in Fremont, California. The shuttered plant Toyota took over had been a dog, with one of GM's most troubled work forces. Working with the UAW, Toyota selected and trained its new workers from that group and filled the plant with conventional machinery. "What GM learned at Nummi proved to be an embarrassment," says Keller. "They learned they didn't need robotics and that management was at fault, not the people who put cars together."

EXPECTING to turn the embarrassment into a lesson for all in the company, GM sent thousands of workers and managers through the factory. These people, Smith hoped, would take what they had learned to other GM plants and spread the gospel. With the new UAW contract, that may happen yet. So far, however, few plants have adopted the Nummi system in whole or in part. Old habits and distrust wore down whatever enthusiasm people who visited or worked at Nummi brought back with them.

More mysterious is the progress at yet another bold venture, the start-from-scratch Saturn program. Four years ago Smith promised that Saturn would revolutionize carmaking when it began operating in 1990. After launching Saturn with an immense splash as a $5 billion project, GM has said little. It has halved the investment and plans to build one assembly line rather than two. Says Saturn President Richard G. LeFauve: "We realize there's an overcapacity problem in the world, and we don't want to add to it."

Pontiac's spacey *new APV minivan won't look much different from this concept version when it starts rolling off assembly lines by the end of this year.*

The new company will supposedly best the Japanese at the small-car game not just by borrowing heavily from their manufacturing techniques, customer service, and management styles, but by leapfrogging them. Rumors abound that Saturn will boast manufacturing technology so flexible that customer orders, transmitted by computer, will be sent to the factory floor in sequence and filled within days. Blue-collar workers will be divided into only two categories: members, who cannot be laid off, and associate members, who can. All decisions will supposedly be made by consensus. One thing GM acknowledges is that workers will be paid salaries, not an hourly wage.

Smith vows that the Saturn plant will still produce, on schedule, a small car able to compete with the best of the Japanese. Skeptics, understandably, will believe it when they see it.

THE TROUBLED EDS acquisition reveals perhaps better than any of Smith's other innovations how deep-seated the obstacles to radical change are within GM. The personal dispute between Perot and Smith obscured a deeper war between an aggressive, entrepreneurial culture and the stubborn traditionalism of GM's management.

Smith's basic notion seemed brilliant. As GM acquired ever more information technologies, its data-processing and computer costs soared out of control. The company had more than 100 different computer networks; each represented a different fiefdom, and few could communicate with others. "We tried to get control of data processing two times, but we never could," says Smith.

So he bought EDS, recognized as one of the best computer systems specialists in the business, and dropped the whole mess in its lap: some 7,000 GM employees and all the hardware. In effect he spun off a cascading billion-dollar cost problem, repackaged it into an entrepreneurial company highly respected on Wall Street, and then financed the whole transaction by selling a special class of stock tied to EDS's profits, the so-called GM-E shares. "It was very clever," says Ronald Glantz of Montgomery. "Smith took an expense, capitalized it, and then put a stock market multiple on it."

The financial dividends were just for starters. Smith was counting on Perot, an authentic management and media hero, to lead his entrepreneurial commandos at EDS in helping to transform GM's old corporate culture.

It didn't work. Both sides are still trying hard to make the best of the relationship, but the romance has turned to bitterness. With Perot gone and Smith weakened, it may yet fall apart completely.

The basic problem: Smith did not understand what EDS could and could not do, and Perot didn't realize how little control Smith had over his company. Smith was under the illusion that EDS's technical wizards could program software for computer-assisted manufacturing. But EDS was largely a data processor and had little experience integrating computerized factories. "EDS doesn't write computer codes, as Smith thought," says a former GM executive. "Less than 10% of its employees are even involved in coding. And EDS didn't have a single expert in the code used for machine tools."

The deal, which Smith and Perot first hammered out by themselves, called for GM computer staffs and hardware to be transferred to EDS. But the companies couldn't agree on who those people were and what equipment constituted a computer. This led to vicious turf wars, says the former executive.

Pricing EDS services turned out to be equally incendiary. The deal stipulated vaguely that EDS would bill GM like any other outside customer. EDS pioneered fixed-price contracts pegged to a client's unit volume in data processing, which gave the company its competitive edge. If EDS reduced its costs but still maintained the agreed-on level of service, or if its client increased its volume of, say, health claims, it made a bigger profit. The company's steady record of 35% compounded annual growth in profits drove the stock price on Wall Street and, because Perot rewarded extraordinary performance with generous stock options, also drove EDS executives. Many have become millionaires.

BUT GM MANAGERS typically approached the pricing question from a strict cost point of view, as they did with most other GM divisions. What had once been simply a cost for them now appeared to be a cost plus an excessive profit. It galled them still more to think that the money coming out of their budgets was enriching EDS executives who were already rich.

In the end the GM managers simply refused to agree to the contracts EDS was proposing. As one top GM executive told another, "It will be a cold day in hell before I will make those bastards from Texas richer." A virtual war broke out between the EDS executives who were trying to get contracts signed and the 57 GM division managers who were reluctant to sign them.

The war is still smoldering. To this day only about a third of the contracts have been negotiated. Although EDS continues to do business with many divisions on a temporary cost-plus-5% basis, it has yet to sign fixed-price deals with GM's two largest divisions, Buick-Oldsmobile-Cadillac and Chevrolet-Pontiac-GM of Canada.

INVESTOR'S SNAPSHOT

GENERAL MOTORS

SALES (latest four quarters)	**$100.9 BILLION**
CHANGE FROM YEAR EARLIER	DOWN 1%
NET PROFIT	**$3.1 BILLION**
CHANGE	DOWN 18%
RETURN ON COMMON STOCKHOLDERS' EQUITY	**10%**
FIVE-YEAR AVERAGE	14%
STOCK PRICE RANGE (last 12 months)	**$94.125–$50**
RECENT SHARE PRICE	**$63.375**
PRICE/EARNINGS MULTIPLE	**7**
TOTAL RETURN TO INVESTORS (12 months to 1/15/88)	**–1%**

Perot remonstrated with Smith when he realized that GM was dragging its feet on the contracts. When that didn't get results, he started to criticize GM, first before the board, then publicly. To Perot the issue was simple. GM was not keeping commitments Smith agreed to in the acquisition. The friction eventually led Perot to propose and accept GM's buyout offer.

Perot says he was careful to protect the EDSers who would stay behind. As part of his deal, he got Smith to agree not to fire any EDS employees, except for moral turpitude, and to accelerate payment of many old EDS stock options to this January. At recent share prices of $36, the option packages are worth from several hundred thousand dollars to several million dollars for each of the 182 original EDS executives who remain. An important question now is, how many of those executives will take the money and run? That may depend on whether GM continues to reward top performance with outsize stock options and how much it interferes in EDS business. So far none have left, but if many do, GM will have wasted the money it spent on the company. Says a former GM executive: "If the top people leave, GM will have bought nothing but an empty paper bag."

Smith is not worried. He says he has made available plenty of new options to keep these executives happy. More important, he says, the contracts with EDS are getting signed now and EDS is making progress in integrating computer systems and otherwise achieving the EDS-GM vision.

No such turf battles have surfaced yet to plague the Hughes acquisition. The space and electronics defense contractor remains autonomous. The main question is whether GM will realize the technological synergies that Smith foresaw in the relationship. These do in fact seem to be developing, if slowly. Hughes now gets 1.4% of its $7 billion in revenues from GM, for projects ranging from robot vision systems to antilock brakes.

ON THE SURFACE Roger Smith shows no signs of a man whose company is in trouble or whose job is threatened. He laughs off rumors that other top executives at GM are plotting to push him out early. He says: "That's just not possible at GM."

But heated internecine skirmishing has indeed broken out, generally pitting the finance guys against the car guys against the legal guys. Smith says he has every intention of naming his own successor, as most GM chief executives before him have. This time, however, the board of directors, smarting from criticism from Perot that they are a rubber stamp and losing face with Wall Street, may play a greater role.

"The board changed after the mess with Perot, particularly the businessmen outsiders," says Maryann Keller. She points out that American Express Chairman James Robinson and Procter & Gamble Chairman John Smale have their own reputations to worry about on Wall Street. "These guys can be sued," she says. "They've approved all the financial decisions and were named in editorials as people who shouldn't let GM get away with this mismanagement." Both declined to talk with FORTUNE about GM.

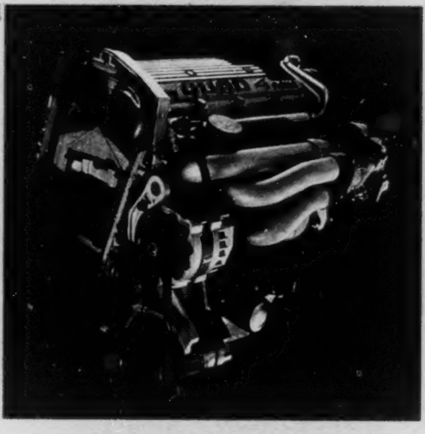
Most GM chairmen, who hold the chief executive's title, have come out of finance, while presidents have tended to be engineers or marketers. But Roger Smith has already said publicly that he might not follow the tradition of naming a finance executive to succeed him. That would rule out the man holding his former job, chief financial officer F. Alan Smith (no relation). Many observers think that would be wise. Says Keller: "He knows absolutely nothing about cars."

The front-runner now is Stempel, a towering man who wears golden cuff links featuring his astrological sign (Cancer) and doesn't talk so much as boom like Tony the Tiger in the Kellogg's Frosted Flakes commercials ("They'R-R-RE GR-R-REAT!"). The articulate and hard-charging Stempel is a tried and true car guy, an engineer who rose to head the Buick-Oldsmobile-Cadillac division. After BOC profits fell he was made executive vice

THE LITTLE ENGINE THAT COULD

■ At first glance the Quad 4 is just another so-called four-valve engine, similar to ones Toyota and several other foreign automakers build. All have two intake and two exhaust valves per cylinder; conventional engines have just one of each. Fuel and air flow in—and exhaust flows out—more freely, and the design allows for a much more efficient combustion chamber shape. The result: more power *and* fuel economy. The Quad 4 puts out 150 horsepower and has an EPA highway rating of 35 mpg.

But in sweating the details of the Quad 4, the Oldsmobile engineers who developed it broke new ground. It has extraordinarily low friction, thanks partly to cylinder bores that set a new standard for roundness. It is also unique in having neither distributor nor spark plug wires; a computer triggers sparks from coils mounted on each plug. Because of such refinements, it burns fuel so completely that it needs less emission-control equipment than all other engines sold in the U.S.



Oldsmobile hasn't been able to keep the engine to itself for long. It's now an option in Pontiacs and Buicks. Eventually it will be the heart of a new GM engine family ranging from superfrugal four-bangers to superpowerful V-8s.

president in charge of the truck and bus group and overseas operations—exiled, some say. These businesses did not do spectacularly under his tutelage either, although he made a name for himself for tough-minded cost cutting—something Wall Street thinks GM needs a lot more of.

Many in the industry were shocked when Smith named Stempel president rather than Stempel's successor at BOC, Lloyd Reuss. But, says one insider, Smith never liked Reuss, a dapper dresser who bridles at any interference in running his show even when it's from the chairman. In the end, says the insider, Smith concluded that BOC's problems were due more to Reuss than to Stempel. Now head of all North American cars, Reuss is still an important force to be reckoned with and an experienced infighter.

One long shot is William E. Hoglund, the current head of BOC. Bright and personable, Hoglund is one of the most popular top executives at GM. He is also one of the few finance people with extensive car experience. Before BOC he headed Saturn and Pontiac, which he spiffed up with a sporty performance image that has made the division one of GM's few winners. Drawbacks: He reportedly doesn't get along with Stempel and has yet to be named to the board.

THEN THERE IS Elmer Johnson, executive vice president in charge of operating staffs. Among all the pretenders to GM's throne, he is probably the most intriguing—in every sense of the word. Smart, ambitious, even Machiavellian according to some reports, Johnson was managing partner at the prestigious Chicago law firm of Kirkland & Ellis until Smith hired him as general counsel in 1983. That makes Johnson an outsider—his biggest obstacle and yet his biggest advantage.

GM has never named an outsider to the top spot, much less a lawyer. And if the company muddles through its latest problems, it probably won't this time around either. If GM's market share falls much further, however, the board may be tempted to do so, if only to shake up top management. In that case Johnson would be a logical choice. He has played similar reorganization roles, not only at his law firm but at International Harvester, where as general counsel he helped orchestrate the company's restructuring.

When Smith first offered him the general counsel's job, Johnson turned him down. Smith later consulted with Irving S. Shapiro, Du Pont's retired chairman and a lawyer himself. Shapiro persuaded Smith to broaden his definition of the job. "The role of CEO has changed from an inside man to more of a public man," says Shapiro. "I told Smith he would do himself a favor if he found a general counsel who could help represent him in his role opposite government and the public."

Smith went back to Johnson with this broader job description and an unwritten understanding that he, like Shapiro at Du Pont, would have a shot at the top job. Johnson has since moved up fast. Last year he was promoted to executive vice president and named to the board, where he has made some important friends. Johnson negotiated the Hughes deal and handled the messy Perot buyout.

Soon the perennially feuding car guys and finance guys had found a common enemy and started leaking stories about how Johnson was overreaching himself.

But last year Johnson blundered by making himself too conspicuous. He attacked Perot personally after the buyout, saying that the first time he knew Perot had a conscience was about three minutes after he had the buyout check in his hand. That scored points on the inside but stirred up Perot, who joined his voice with other stop-Elmer forces at GM. Charged Perot: "Only in America could *Playboy*'s former lawyer and a guy who couldn't make a car if his life depended on it be named head of the biggest car company." (Johnson once represented Playboy President Christie Hefner.)

Last fall the *Detroit Free Press Magazine* ran a flattering cover story that asked whether Johnson would be the next chairman of GM. It featured a picture of Johnson, an amateur trumpet player, tooting his own horn, and quoted him as saying that GM was too "fat, dumb, and happy." That further ruffled feathers at GM, where the best profile is a low profile.

Soon the perennially feuding car guys and finance guys had found a common enemy and started leaking damaging stories to the press and security analysts about how Johnson was overreaching himself. Johnson, so one of the stories goes, was chewed out by the executive committee for his unseemly behavior and told to stop giving interviews to the press. Says Perot: "He's gone underground now."

For the moment the car guys seem to have won. Smith says any one of his executive committee members—Stempel, Reuss, Johnson, F. Alan Smith, and Donald Atwood, head of GM's electronics groups—would make a good CEO, but he seems to be favoring Stempel, whom he deferred to regularly at the Waldorf festivities. Times have changed, he seems to be saying between the lines, and now GM needs a car engineer more than a financial wizard.

Many industry people agree. But another school of thought holds that Smith's failings have more to do with his leadership abilities—or lack of them—than his accounting background. *Call Me Roger*, a critical book to be released in April by one of Smith's former speechwriters, Albert Lee, makes this case. So does Maryann Keller, who is writing a book—with cooperation from GM—about GM in the 1980s. "Roger Smith is an introvert, a loner, not a leader," she says. "The chairman's role should be to inspire designers and engineers, the hourly workers, the dealers, and consumers. That's more important than having gasoline in your blood."

Former Du Pont chairman Shapiro is even more dubious about the supposed virtues of car people. Says Shapiro: "The CEO's job is to solve problems, to set policy for the future, to select the key people to do the work, and to be the corporation's face to the public." Both Keller and Shapiro suggest Johnson could probably play this role better than any of the other contenders.

IF GM PULLS its fat out of the fire this year, ending with higher sales and profits, such talk is likely to fade quickly. Roger Smith could go on to anoint his successor and retire with grace—perhaps even with the restored mantle of the brilliant visionary that he wore so briefly a couple of years ago.

But if 1988 ends with failure, excuses, and promises, a lot of people—big shareholders, dealers, and probably directors—are apt to conclude that the only solution is a drastic revamping. "The problem is at the top of the organization," says Glantz. "You have people in the middle sabotaging the reorganization because they are afraid of losing their jobs. Some don't even know what their jobs are. But the best way to send a message to the middle is to fire the people at headquarters." When Lee Iacocca took over Chrysler, he fired 33 of the 35 top executives. That was a message.

POLITICS & POLICY/THE FORTUNE 500 CEO POLL

IT'S 'BUSH . . . BUT' FOR PRESIDENT

Corporate chiefs remain mostly Republican, with the VP their favorite candidate. But open the field to noncandidates, and his support slides.

■ *by Sarah Smith*

MITCH KEZAR

IRWIN JACOBS
Minstar

GORDON LUCE
Great American

BRUCE DAVIDSON—CRAY

JOHN ROLLWAGEN
Cray Research

TO THE CHIEFS of America's largest corporations, the 1988 presidential election shapes up as a race between two old political warhorses, George Bush and Bob Dole. Perhaps a bit too confidently, the CEOs think a Republican is a shoo-in, and the only question is which of the Big Two it will be. (See the following story for an examination of the personalities and positions of Bush and Dole.) But the corporate leaders questioned in the latest FORTUNE 500 CEO Poll also think the professed candidates in general are far from inspiring. Asked to choose the best next President from among anyone in America, the CEOs include only two declared candidates in their top five picks.

FORTUNE's survey was conducted from January 11 to 19 by Clark Martire & Bartolomeo, an opinion research firm. The 161 respondents were selected from among the chief executives of the FORTUNE Industrial 500 and Service 500 companies.

Of the CEOs interviewed, 90% foresee a Republican as the 41st President. Never mind the Iran-contra scandal, the falling dollar the towering twin deficits, and the crash. E. B. Leisenring of Westmoreland Coal speaks for many when he says, "It is like we are on cloud nine compared to where we were with Carter. We had prime interest rates near 20% and runaway inflation." CEOs also spread the blame for mistakes pegged to the Reagan Administration. Leisenring says, "The federal deficit is a very serious problem. I think the Democratic-controlled Congress shares every bit as much of the blame for that as the President."

By a margin of 2 to 1 executives believe Bush will win the Republican nomination. His advantage is less but still impressive when the CEOs are asked to name the candidate from either party they most favor for the presidency. He gets 51% of their votes, an overwhelming margin among the 13 declared candidates. Dole is second with 34%, the only other candidate in double figures. The No. 1 Democrats: Bruce Babbitt and Albert Gore, with just 2% each.

Why are the CEOs so bullish on Bush? It's not character or charisma nearly so much as his résumé. Nine out of ten executives who think he would be the best President mention his experience. Says Gordon Luce of Great American First Savings Bank in San Diego: "I like the combination of government positions he has had: his involvement with the CIA, his work in China, his leadership as Republican National Committee chairman and then as Vice President. He's been through difficult times in the Reagan Administration and the Nixon-Ford days."

Other chief executives like Bush because he is one of their own. In the 1950s he founded a number of oil companies, including Zapata Petroleum with J. Hugh Liedtke, now chairman of Pennzoil. Kenneth Lay of Enron Corp., a Houston energy company, says, "I like first that he started his own company and that he grew it and kept it profitable. Also, heading up the CIA is more like being a chief executive than a legislator: You have got a lot of people working for you, and you have got to do a lot of delegating. That is quite different from being a Senator."

Most CEOs are out of step with Republicans in Iowa, site of important caucuses February 8. Dole leads Bush there, according to recent polls. Many Dole loyalists in executive suites echo Irwin Jacobs, the Minneapolis corporate raider who heads Minstar. "My opinion is based on his record in government and his close involvement with the White House," says Jacobs. "Dole understands the House and the Senate. These are not strangers to him. He has lived and died with these people a lot of years." Robert Liuzzi of CF Industries, a farm cooperative, prefers Dole's record to the Veep's: "I think, frankly, the office of Vice President doesn't allow for much day-to-day involvement in the affairs of the country," he says. David Coffin of Dexter Corp., a chemicals company, feels one of Dole's strengths is his image. Says he: "Bush projects poorly through the media, especially the tube. Dole projects well. He is straightforward, tough, articulate." Coffin thinks Dole would go after the national debt with more fervor than Bush would.

CEOs believe the Democrats just are not offering anyone of Bush's or Dole's stature. Says Joseph Williams of Warner-Lambert: "I don't think they have the record. There just isn't anybody who stands out." That puts the Democratic nomination up for grabs; 43% of the CEOs won't even guess who will get it. A quarter of those polled believe New York Governor Mario Cuomo, who isn't a candidate, will be drafted as the party's choice, although not one thinks he would make the best President. Executives dismiss Gary Hart's reborn campaign—only 2% rank him the Democratic front-runner.

Many executives think America will not get the best possible President in

REPORTER ASSOCIATE *Julianne Slovak*

1988. Reason: Their favorites aren't running. A lot of Bush and Dole supporters abandon their candidate when asked to choose from a wide-open field of all Americans. Bush's support drops from 51% to 33%, Dole's from 34% to 15%. Surprisingly, executives' second choice (tied with Dole) is a Democrat, New Jersey Senator Bill Bradley, who isn't running.

Bradley supporters verge on the passionate. Says Gerry Mitchell of Dana Corp: "I am not a Democrat. This is a Republican talking, but I'd vote for Bradley instead of any of the Republicans they have up there." Bradley's big draw is his intelligence. Jerry Pearlman of Zenith Electronics says, "My interest in the Senator stems from the fact he is able to address complex issues, as he did in the tax area and the international debt arena." One fan thinks Bradley's brains are the reason he isn't running. "He is obviously interested in being President at some point," says John Rollwagen of Cray Research. "I think he is perhaps smart enough not to be the next President—because the next President has a good chance of being clobbered."

Other CEOs favor such disparate noncandidates as Georgia Senator Sam Nunn and White House Chief of Staff Howard Baker. CF Industries' Liuzzi, when offered a wide-open choice, drops his support of Dole in favor of Lee Iacocca. He probably will not get his wish, but FORTUNE 500 CEOs in general possess greater than average means to get theirs. The chiefs' enthusiasm for Bush is a factor pundits should not overlook.

Q

Which party do you think will capture the White House in 1988?

A

Republican	**90%**
Democrat	**7%**
Not sure	**3%**

Q

Who do you think will be the Republican nominee?

A

George Bush	**66%**
Robert Dole	**33%**
Pat Robertson	**1%**

Q

Who do you think will be the Democratic nominee?

A

Not sure	**43%**
Mario Cuomo	**25%**
Michael Dukakis	**17%**

Q

Of the 13 major candidates for President, which one would you most like to see elected?

A

George Bush	**51%**
Robert Dole	**34%**
Pete du Pont	**3%**
Jack Kemp	**3%**
Bruce Babbitt	**2%**
Albert Gore	**2%**
Michael Dukakis	**1%**
Alexander Haig	**1%**
Richard Gephardt	**0%**
Gary Hart	**0%**
Jesse Jackson	**0%**
Pat Robertson	**0%**
Paul Simon	**0%**
No opinion	**3%**

Q

Which person—not only among declared candidates but also anyone else—do you think would make the best next President of the U.S.?

A

George Bush	**33%**
Bill Bradley	**15%**
Robert Dole	**15%**
Sam Nunn	**5%**
Howard Baker	**4%**
Lee Iacocca	**3%**
Jack Kemp	**3%**
Ross Perot	**1%**
George Shultz	**1%**
Receiving one mention each: Bruce Babbitt, William Clements, Albert Gore, Jeane Kirkpatrick, Richard Nixon, Pete du Pont, Charles Robb, Donald Rumsfeld, Alan Simpson, Richard Thornburgh, Jim Wright	
Don't know	**8%**

JERRY PEARLMAN
Zenith Electronics

JOSEPH WILLIAMS
Warner-Lambert

ROBERT LIUZZI
CF Industries

■ IACOCCA STALLS OUT • THE CHANGING SOUTH • WHY WASSERSTEIN JUMPED ■

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YOUR NEW GLOBAL MARKET

How to Win the World War for Profits and Sales

Texas Instruments CEO Jerry Junkins: prospering by becoming even more international

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"Joe was able to harness his ego for the good of the firm. Bruce was not."

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"Wherever she is, I'm sure her skin looks dreadful."

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"There are more and more two- and three-vacuum homes today."

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Cover: Jerry Junkins holds a silicon wafer—soon to be DRAM chips—in a photograph by Mark Seliger.

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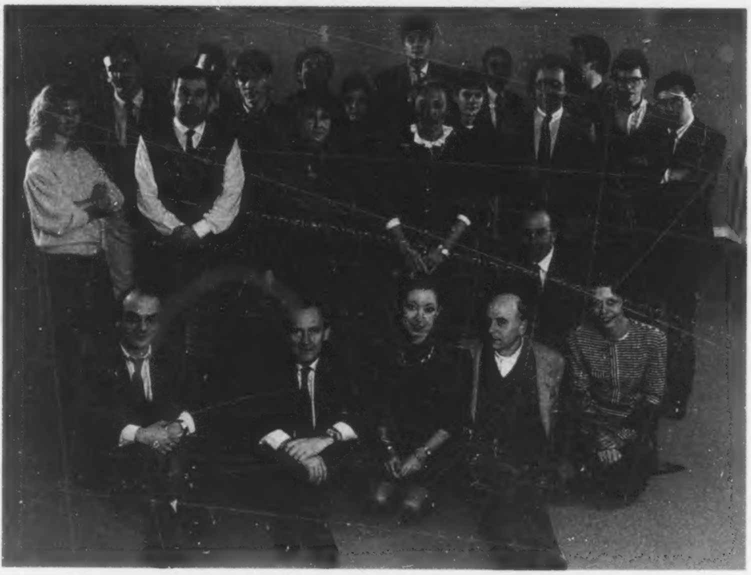
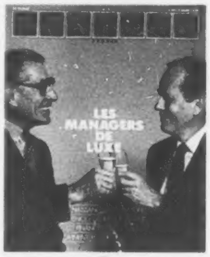
THE EDITOR'S DESK


P. PERRIN—SYGMA

The staff of FORTUNE France *with editor-in-chief Bunodière front and center*

JAMES LUKOSKI

Johnson and first cover



THE CHALLENGES and opportunities of going global are the focus of this issue's cover stories, and as it happens, FORTUNE is expanding its own global commitments. Since 1983 we have published FORTUNE International, with a circulation of 105,000 outside the U.S. Now, with a European partner, we have launched FORTUNE *France*, a monthly French-language edition that will consist mainly of original material produced in Paris. Issue No. 1 appeared in February. The press run was 80,000; over 80% of the newsstand copies in Paris sold out in the first ten days.

FORTUNE *France* is a joint venture of Time-Life and the Hachette Filipacchi group, which publishes many magazines including *Elle, Paris-Match*, and *Le Nouvel Economiste*, France's leading business weekly. The venture was arranged by William S. Rukeyser, my predecessor and until recently Time Inc.'s director of international business development. The editor-in-chief of FORTUNE *France* is the spirited and energetic Claude Bunodière, who spent 12 years at *Le Nouvel Economiste* before joining FORTUNE *France*. In charge of editorial liaison with the new magazine will be Keith Johnson, a member of FORTUNE's board of editors, who was based in Paris for two years as a correspondent for *Time*.

French publications tend to write about business in an abstract way, says Bunodière. She aims to emphasize the decision-makers who influence events, and to publish "a really internationally minded magazine." She adds: "We want to catch the FORTUNE spirit of accurate, thorough investigation."

We think she is succeeding brilliantly. *Vive la* FORTUNE *France!*

Marshall Loeb
MANAGING EDITOR

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ENTERING A NEW AGE OF

There's no place to hide as global companies build, buy, and sell across borders. But why hide? Wealth is multiplying, along with the markets it sustains.

■ *by Richard I. Kirkland Jr.*

THINKING about going global? Friend, you're too late. The train has already left. Today the competition for goods, services, and ideas pays no respects to national borders or the old geopolitical divides that supposedly separate North from South, East from West. In this and the two stories that follow, FORTUNE describes why the world of business is changing so dramatically, how managers are rising to the challenge, and what governments can—and cannot—do to smooth the path.

Do you doubt that the new rules of the global village apply to you? Consider:

■ A one-world market exists for products ranging from cars to consumer electronics to carbonated drinks. Build a better microchip in Omaha, and buyers will be there from Osaka to Oslo. As producers go global, so must suppliers, be they bankers, brokers, or auto paintmakers. Last year IBM's sales from overseas operations as a share of total revenues hit 54%. Smaller fry, too, can win large pay-offs by selling globally. Foreign sales among the high-growth members of the American Business Conference, whose revenues average $360 million a year, grew at a 20% annual clip from 1981 to 1986—five times faster than the U.S. average.

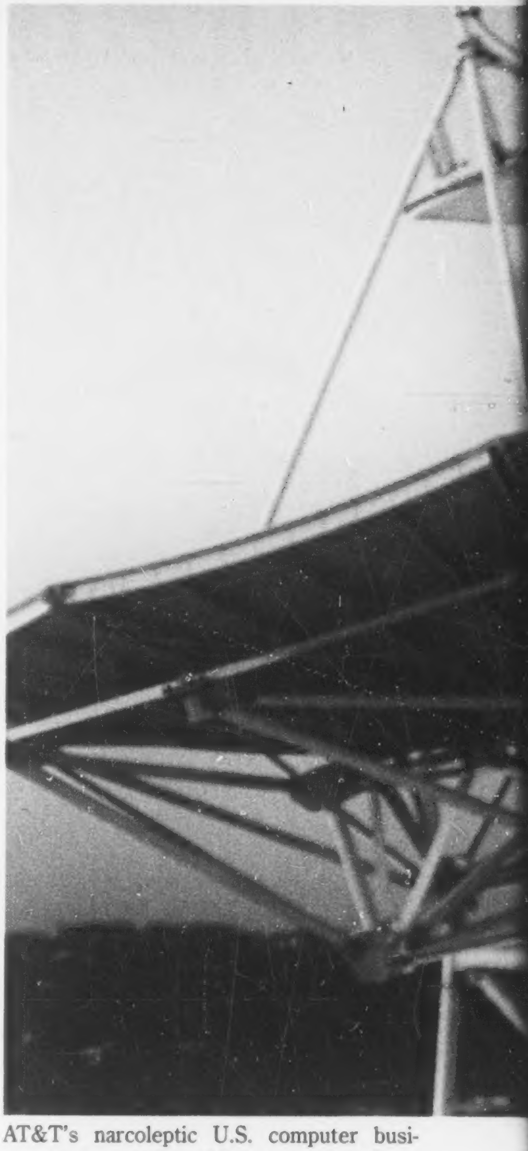
■ Even if you don't export, your competitors are likely to hail from all over. See how foreign manufacturers, including many from the so-called Third World, hastened the industrial sunset for USX, LTV, and America's other stay-at-home steelmakers. Now squint into the sunrise and ask American Express about the high-quality, low-cost software programming it gets from Bombay-based Tata Consultancy Services.

■ Instead of competing with you, your overseas rival may buy you. Already this year, Firestone has agreed to sell most of its tire business to Japan's Bridgestone Corp. In 1987 British Petroleum, Unilever, and Hoechst took three of the seven top spots on FORTUNE's ranking of the U.S. Deals of the Year. Roughly half of American chemical workers toil for owners from abroad. So do Bruce Springsteen and Michael Jackson, since Sony plunked down $2 billion for CBS Records. Only about 4% of America's work force is employed by companies owned in whole or in part by foreigners; in Western Europe, the average is over 15%. But as the dropping dollar turns the world's biggest market into the world's bargain basement, the U.S. percentage seems set to climb rapidly.

REPORTER ASSOCIATE *Carrie Gottlieb*

■ Corporate winners increasingly treat the rest of the world as a source of supply as well as demand. Sales between subsidiaries of the same company are generally thought to account for at least one-quarter of global trade, and around 50% of U.S.-bound exports from some countries, such as Mexico and Singapore. More important, if harder to quantify, are international transfers of technology. These range from IBM's recent breakthrough in superconductivity research, generated in its Zurich lab, to low-end innovations like Procter & Gamble's liquid Tide, made with a water-softening compound developed in Europe. Christopher Bartlett, an associate professor at Harvard business school, argues that "competitiveness is already beyond the reach of the purely national company." New products are getting costlier and harder to develop, and shorter life cycles mean that companies have to develop them and get them to global markets faster than ever.

■ To transform global challenges into new opportunities, smart companies seek common cause where they can with foreign competitors. Thus even as Ford Motor and Fiat clashed over the carcass of Italy's bankrupt Alfa Romeo in a bitter takeover fight two years ago, their truck-making joint venture kept gaining market share in Britain. AT&T's four-year-old European joint venture in telephone switches with Philips has remained in the red. But



AT&T's narcoleptic U.S. computer business was reawakened last year after Carlo de Benedetti of Olivetti, its Italian joint venturer, lent it one of his top lieutenants.

■ Finally, even if you run a drugstore in Knoxville and all of the above seems irrelevant, you still need to cultivate a more planetary planning horizon. The cost of the merchandise you sell, the sales pitches that captivate your customers, even the price of your mortgage and the size of your tax bite, increasingly reflect the exotic influence of

BOUNDLESS COMPETITION

PABLO BARTHOLOMEW—GAMMA/LIAISON

■ TIED TO TEXAS BY TECHNOLOGY: *A satellite dish is the gateway to Texas Instruments' global network for TI's semiconductor design engineers in Bangalore, India.*

decisions made on the Tokyo stock exchange, launched over lunch by London admen, or devised by monetary boffins in the bowels of West Germany's Bundesbank. As Mikhail Gorbachev noted recently, "Comrades, not one state in the world today can regard itself isolated from others in the economic respect." So ask not. It tolls for thee.

For countries as well as companies, the emergence of a global economy generates big worries—but even larger opportunities. Many Americans feel disturbed and threatened by the postwar shrinkage in their country's economic clout. But only some of the losses in America's share of global GNP since the 1950s have been self-inflicted. Mainly they were the inevitable result of the happy fact that Western Europe and Japan have grown stronger and richer. Had those nations stagnated rather than prospered, the U.S. could have remained the world's undisputed economic champ. But America and her allies would all be poorer and less secure.

Now voters and policymakers in all the advanced industrial economies confront a bigger adjustment challenge. They must resist the temptation to see the growing good fortune of Asia's Four Little Dragons and other developing countries as a diminution of their own. Says Irving Leveson, senior vice president at the Hudson Strategy Group: "People tend to focus on Third World countries as competitors and overlook the fact that these are also going to be major markets." The process of creating wealth globally is anything but a zero-sum game.

Though it has only recently been popularized by management consultants and Madison Avenue mavens, globalization is an ancient trend. The inexorable intertwining of the world's economies was nurtured by the development of capitalism itself. For the past 250 years annual growth in international trade has generally outstripped yearly GNP growth in the advanced industrial economies. Apart from a series of setbacks in the late 19th century, the only significant break in that pattern came between 1914 and 1950—when two giant wars and a decade of virulent protectionism blasted a gaping hole in the world economy.

NOR IS INVESTING internationally a new development. For example, in 1913 nearly half of Britain's savings flowed abroad in search of higher returns. Notes Harvard economist Jeffrey Sachs: "All the deregulation and expansion of recent years are only now returning us to the level of international capital mobility we enjoyed in 1913."

What is profoundly different today is the speed and scope of growth in global markets. Advances in transportation have fueled a revolutionary expansion in trade and travel. Among the leading Western industrial powers, the percentage of GNP absorbed by foreign trade has almost doubled since 1960. Some 325 million travelers a year now venture outside their own borders, compared with just 25 million in 1950. Satellite-linked electronic networks speed ever greater volumes of information around the planet at ever lower cost.

As time and space shrink, the process of wealth creation spreads. Between history's dawn and the mid-20th century, fewer than two dozen nations had ever managed to hoist themselves onto the path of sustained economic growth. Now long-term increases in real GNP per capita, mirrored by steady rises in such nonmonetary measures of wealth as life expectancy and education, have become commonplace in most countries. The tragic laggards who have yet to climb aboard the development bandwagon—Haiti, Bangladesh, much of sub-Saharan Africa—are the exception, not the rule.

On average, for example, the 2.4 billion citizens of what the World Bank classifies as "low-income economies" now live 11 to 13 years longer than they did two decades ago. Roughly 10% of college-age Brazilians, Indians, and Turks today sign up for higher education—just a bit less than the percentage Britain, Italy, and Japan boasted in 1965. In Thailand and South Korea, the comparable figures are 23% and 26%, up from just 2% and 6%, respectively, in 1965.

IN AN EVER RICHER, better-educated world, where modern technologies and training methods are easily transferable, nations once exiled to what historians dub the periphery of the global economy can increasingly penetrate its old industrialized core. Since 1965 the developing countries' share of world manufactured exports has risen from 7.3% to more than 17%. Hong Kong, South Korea, Singapore, and Brazil now rank among the top 20 exporters of manufactured goods, as tallied by the World Bank. In 1965 no developing country even made the top 30.

W. W. Rostow, a distinguished economic historian at the University of Texas, is confident that over the next 50 years China, India, and most of Latin America will take large strides down the trail blazed by Japan and South Korea. Consider India. Since 1950 the number of Indians with degrees in science or engineering has blossomed from 190,000 to 2.6 million—a talent pool exceeded only by the U.S. and the Soviet Union. Observes Rostow: "Even discounting for quality, that's an impressive critical mass."

In one small but notable preview of things to come, Indian software companies have recently begun to make inroads in the U.S. and Europe. Says Ajit Sawant, New York office manager of Bombay-based Tata Consultancy Services: "Software is an ideal product for India because it requires good people and little capital. And we can export it by air." Adds Girish Parikh, a Chicago-based software consultant: "India's software rush is on. The world's 70 billion lines of COBOL code are our acres of diamonds."

Unquestionably, these new Third World competitors will force further painful restructuring in the First World. But as the U.S. experience since the early 1970s shows, overall employment will keep rising as long as workers are willing to shift into new industries and services. Nor must the West "deindustrialize." Furious automation can allow manufacturing to maintain its share of total output, as it has for the past few decades. Low-wage, high-productivity competitors will continue, however, to chip away at blue-collar manufacturing jobs in

LOUIS PSIHOYOS

■ **JAPANESE INVESTMENT AT WORK:** *The brew is red, white, and blue. But the owner of the Salem, New Hampshire, plant is Japan's Kirin Brewery Co., a major U.S. Coke bottler.*

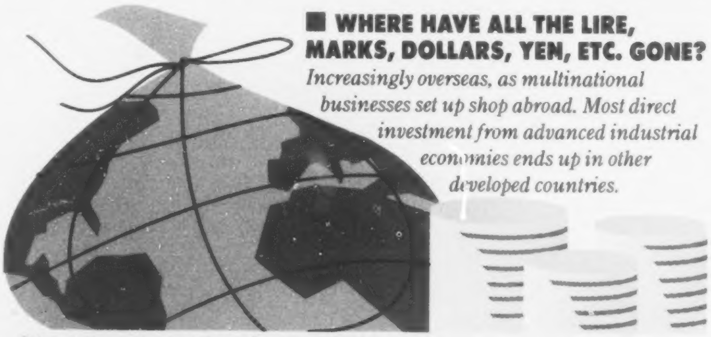
DAVE BARTRUFF

■ PEKING FRIED CHICKEN: *Finger-lickin' demand meets supply in Kentucky Fried Chicken's largest restaurant, opened recently in China's capital.*

North America, Japan, and Western Europe.

The good news is that countries playing catch-up—as Japan did with the U.S.—tend to grow considerably faster than the already arrived. Measured by GNP per capita, the advanced industrial countries, including Japan, grew only 2.4% on average from 1965 to 1985. Meanwhile growth climbed at a 4.8% annual clip in China and Indonesia, over 4% in Brazil and Malaysia, and 6% or better in the Little Dragons. Even now, despite the burden of largely unrepayable debt many of them carry, developing countries account for one-third of U.S. exports. Since GNP per capita doubles in just 18 years at a 4% annual clip, that share can only swell as we enter the 21st century. Says Albert M. Wojnilower, managing director of First Boston Corp.: "The only sustainable export market is among the developing countries."

Interdependence among the developed countries has been accelerated by a remarkable boom in foreign direct investment (see chart). To capture customers who demand constant innovation and rapid, flexible response, executives everywhere have concluded that they can no longer afford to export from a single country—or even a single continent. "North America, Japan, and Europe are the major world markets," says Anders Scharp, president of Swedish appliance giant Electrolux, which has spent more than $1 billion since 1984 on acquisitions in Europe and the U.S. "To stay competitive, you must have a significant presence in at least two of them and probably all three." Compared to the multinationals of yore, these self-styled global enterprises put far more effort into integrating manufacturing, R&D, and marketing strategies across borders.



■ WHERE HAVE ALL THE LIRE, MARKS, DOLLARS, YEN, ETC. GONE?

Increasingly overseas, as multinational businesses set up shop abroad. Most direct investment from advanced industrial economies ends up in other developed countries.

Direct investment in other countries (including reinvested earnings) in millions of U.S. dollars

	1960	1970	1980	1986
U.S.	$2,940	$7,589	$19,220	$28,050
Japan	79	355	2,385	14,480
W. Germany	139	876	4,180	8,999
Britain	700	1,308	11,360	16,691
Canada	52	302	2,694	3,254
France	347*	374	3,138	5,230
Italy	−17*	111	754	2,661

*1961 figures.

SOURCE: OECD

Politicians and labor leaders, unlike businessmen, naturally take a more parochial view of global investment flows. Far too many instinctively denounce local corporations that invest abroad as job "exporters," even though they welcome foreign investors in their own countries as job creators. And like England's F. A. McKenzie, whose book *The American Invaders* denounced the U.S. takeover of British industry back in 1902, a growing number of U.S. citizens today xenophobically view the current tide of American asset sales as a dangerous assault.

Relax, guys. Foreign-owned companies account for more than 20% of industrial production in West Germany and more than 50% in Canada. In Brazil $30 billion of foreign investment is largely responsible for that country's growing automotive, office equipment, farm machinery, and pharmaceutical industries. And none of these countries has experienced the slightest loss of sovereignty.

Indeed, in an ever more integrated global economy, the ability of any nation's industries to gain or protect world market shares—the ultimate gauge of their ability to produce jobs—will increasingly be determined by the efficiency with which companies make as well as manage their overseas investments. Ford and IBM, for example, might well be generating less U.S.-based employment today had they not been able earlier to invest abroad—both by "outsourcing" the production of components to low-wage countries like Mexico and by establishing assembly plants and R&D centers in Europe and Japan. Except in cases that raise legitimate concerns about "national security"—the purchase of a major defense contractor, say—countries will generally find themselves best served by adopting Lord Lever's view on foreign investment. The British lawyer, businessman, and statesman's rule is not to "give a damn who owns my industries as long as they're successful."

The growing irrelevance of borders for corporations will force policymakers to rethink old approaches to regulation. Might not industrial mergers that would once have been barred as anticompetitive make sense if the true measure of a company's market share is global rather than national? "Antitrust laws exist to protect consumers, while trade laws are mainly concerned with producer interests," notes Diane Wood, a law professor at the University of Chicago. "Sooner or later both will have to merge under the heading of something called competition law."

STILL, would-be global strategists cannot afford to ignore national differences. Recently David Roche, London-based European equity strategist for Morgan Stanley, tracked movements in international stock markets since the mid-1970s against those of the U.S. market. His goal was to see if a decade of soaring cross-border investing by financial institutions had begun to push them toward greater commonality. "If anything, I found the divergence has increased," he reports. Roche's conclusion: The significance of stock markets as "a barometer" of the health of widely varying domestic economic and financial policies far outweighs the importance of global trends that affect specific industries.

The stresses of global competition were bound to fire up protectionists and give rise to a new general testiness about free trade. So it is all the more encouraging that political leaders keep trying to stretch borders. The world's long march toward economic global villagedom should accelerate considerably in the next few years if the recent U.S.-Canada free-trade pact and the European Economic Community's drive to create a truly common market by 1992 proceed as planned.

The 18th-century philosopher David Hume advised the nations of his day that if they would "all remain industrious and civilized," none need fear its neighbors' successes, and all might prosper together. His advice still holds. As long as goods and capital continue to circulate at least as freely as they do today, the global economy can remain divided into 186 competing nation-states and still deliver an unprecedented expansion in wealth. Our common challenge is to ensure that we remain industrious and, above all, civil. F

THE LONG ARM OF JERRY JUNKINS

■ The competitive rigors of the new global marketplace are beating the complacency out of all sorts of companies—even those long accustomed to doing business overseas. Jerry R. Junkins, 50, the quiet-voiced chief executive of Texas Instruments, is prominent among the top managers who saw the changes coming and expect to profit from facing them early. TI, a longtime leader in microchips, had been operating in Asia for over two decades before Junkins took charge in 1985. But far from exhibiting global sophistication, the company was structured in ways that encouraged executives from Abilene to Osaka to focus on small bits of local turf. Aiming for worldwide efficiency, Junkins—who has run almost all of TI's domestic operations but never worked overseas—is trying to change all that.

He wants managers who can look beyond their own fiefdoms to consider the capabilities and needs of the company as a whole. At TI, Junkins faced cadres of overseas managers accustomed to controlling the factories that made the products they sold. That contributed to a buildup of excess capacity that reached daunting proportions in 1985, when the bottom fell out of the international semiconductor market.

MARK SELIGER

The worldbeater at home

Junkins has taken strong steps to discourage parochialism among his managers. For example, Akira Ishikawa, the executive running TI's operation in Japan, had to broaden his perspective when he was given responsibility for TI's worldwide memory-chip business as well. In Japan, a voracious consumer of memory chips, customer demand so far outstrips the limits of TI's local factories that adding capacity is tempting indeed. But now that global efficiency is also his goal, Ishikawa must question investment in new Japanese plants while spare capacity exists elsewhere.

The carrot is just as important as the stick in Junkins' scheme. When TI's Japan unit decided to order memory chips from a TI plant in Lubbock, Texas, it was rewarded with that plant's firm commitment to maintain shipments to Japan even if demand picks up in the U.S.

That kind of cooperation is crucial to the new TI. The company requires that managers with global responsibility meet with their overseas colleagues every quarter to set worldwide strategy. Gathering in small groups, the executives hash out the inevitable conflicts in their investment and product-development plans. Their task is done only when they have produced a detailed agreement specifying how much money will be spent on which program, and where. As a symbol of commitment to the plan, each manager in turn must stand up and write his or her name on a blackboard, while the group leader memorializes the event with a Polaroid picture. On a day-to-day basis, TI staffers stay in touch by using the company's network of more than 40,000 terminals in 50 countries.

Junkins believes this new organization can learn to squeeze profits out of the cutthroat memory-chip business while gaining the valuable technological edge that comes with the production of customized chips. In custom chips, clients design their own products around the producer's manufacturing technology. TI's worldwide strategy meetings ensure that the company knows enough about its customers' needs to invest in the manufacturing technologies that will satisfy the greatest numbers of buyers, no matter where they come from. The strategy seems to be working: After steep losses in 1985, TI has posted seven consecutive quarters of profit. In the troubled semiconductor business, that counts as a win. **—Andrew Kupfer**

LOOKING AHEAD

WHAT GOVERNMENTS SHOULD BE DOING

Radical reforms are not required. But the major countries will have to work together to smooth currency swings, ease trade barriers, and regulate financial markets.

■ *by Sylvia Nasar*

Exhortations to think globally are well and good, but what do you take for the migraine you get from contemplating the messy and unpredictable theater of international economic policy? Volatile exchange rates make doing business across borders a pain. Every time you turn around there's a new non-tariff trade barrier in the country you were planning to enter. The financial markets look as if they might implode any day, as they almost did on October 19.

Radical reforms aren't likely. Most such proposals suffer from grave technical flaws and call for sacrifices of national sovereignty that few countries are willing to make. But Big Solutions aren't required to begin dealing with the worst problems—just a series of actions that demand no more political will than the major nations should be able to muster.

Gyrating exchange rates—led by the dollar's Icarian rise and fall—are the worst offenders of global economic order these days. Says international economist Jagdish Bhagwati at Columbia University: "We have survived floating rates, but not in a pleasant way." Currency values have been set by the marketplace since the 1973 collapse of the Bretton Woods agreement that fixed rates after the end of World War II. Economists dub the present system the "dirty float" because central banks frequently intervene and the currencies of smaller countries have mostly been pegged to the dollar or the deutsche mark.

Exchange rates have been extraordinarily volatile. Determined in the short run mainly by immense capital flows, the rates are forward-looking and jumpy just like the prices of stocks, bonds, and other assets, and can stray far from fundamentals like relative rates of inflation, productivity growth, savings, and investment. Speculators have made the swings bigger. Many economists think the speculators were responsible for the dollar's surge in the latter half of 1984, for example, and fear a similar downward spiral that could lead to a complete collapse.

MICHAEL O'NEILL

■ **SEEKING STABLE CURRENCIES:** *U.S. Treasury Secretary James A. Baker III would use commodity prices as a guide.*

Wouldn't life be simpler if fixed exchange rates were again the rule? After all, the world economy thrived under Bretton Woods. French finance minister Edouard Balladur has said, "I believe that we are living at the end of the period of floating exchange rates, and I think it is time to return to a system as automatic and as constraining as possible." A constraint that appeals to U.S. Treasury Secretary James Baker is an index of commodity prices. If it begins to soar, the major countries would rein in monetary growth to ward off inflation.

continued

REPORTER ASSOCIATE *Edward Prewitt*

Some old-timers, including President Reagan, would like to see the world go back on the gold standard. But that would place the globe's money supply at the mercy of shortages and gluts engineered by the two main producers of gold, South Africa and the Soviet Union. Anna Schwartz, staff director of the 1981 federal commission on the matter, concludes that gold bugs, "like Miniver Cheevy, probably were born too late."

One alternative is what economists Ronald McKinnon of Stanford University and Robert Mundell of Columbia call "an international gold standard without gold." The major industrial countries would fix exchange rates and set a target for the growth of the world's money supply designed to achieve stable prices. They would have to stay within assigned domestic credit limits and buy or sell their currencies in international markets as often as required to keep rates stable.

The system McKinnon and Mundell propose is tidy, but there are problems. The "right" exchange rates shift over time as productivity grows at different rates in different countries. And no major player is willing to pay the political costs of fixed-rate systems. Says former Council of Economic Advisers chairman Martin Feldstein: "We are simply not prepared to give up our sovereignty."

More plausible is a system of quasi–fixed rates resembling the generally successful European Monetary System. The most detailed proposal comes from John Williamson, senior fellow of the Institute for International Economics, a Washington, D.C., research organization. Williamson would have the major countries set targets for exchange rates and agree to keep swings within 10% on either side. To stay within the boundaries, governments would intervene in currency markets by buying and selling their currencies and would also adjust domestic monetary policies to raise or lower interest rates.

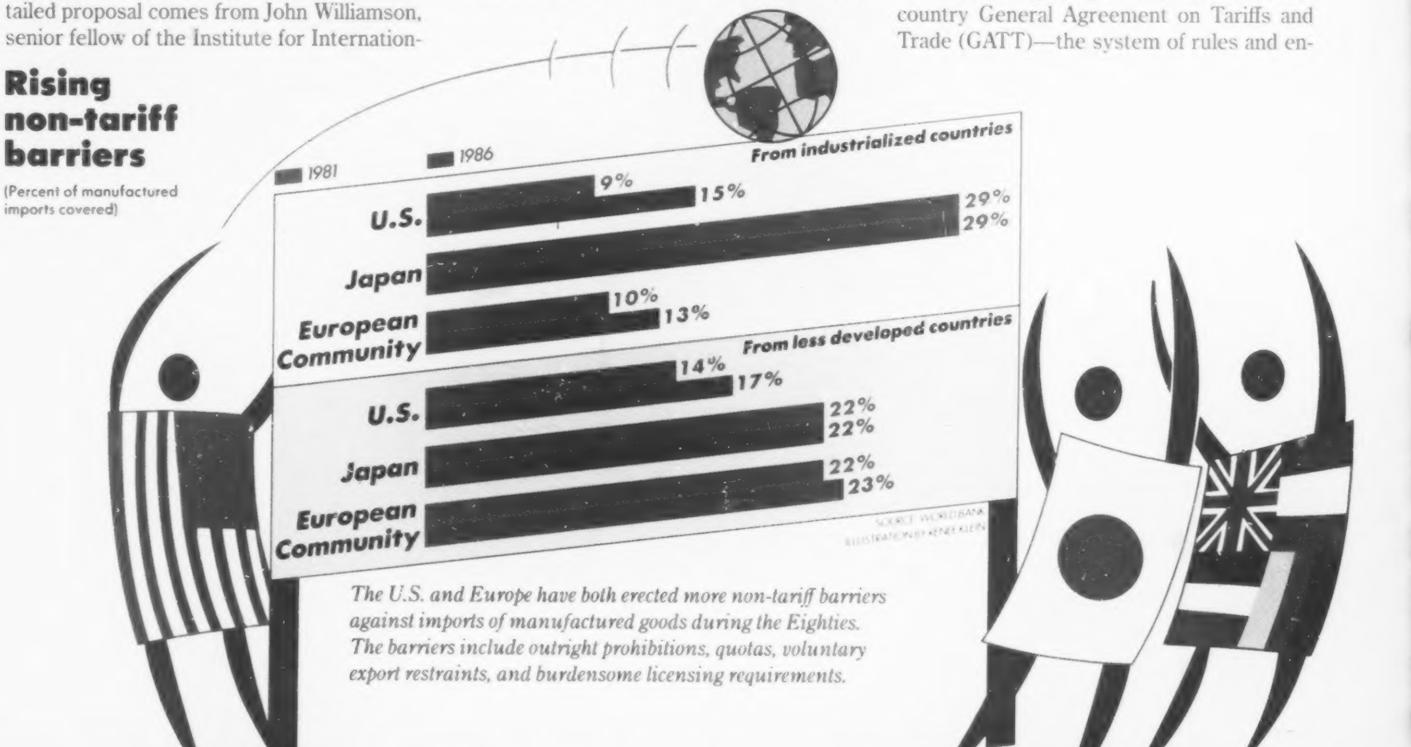
NO CIGAR here, either. Picking the correct exchange rate is virtually impossible, and picking the wrong one can be disastrous. Witness the turmoil that followed when the major industrial nations, the so-called Group of Seven, last year tried to stabilize the dollar at what turned out to be too high a rate. Deciding which country should make the adjustments—should West Germany ease its monetary policy or the U.S. tighten?—has proved difficult too, especially since economists disagree profoundly over the effects of any given change in monetary policy. Because fiscal policy can influence real interest rates, countries would have to coordinate their budgets—one of the reefs upon which fixed exchange rates also founder.

Which leaves us with the current system. Like Churchill's democracy, it is the worst except for all the rest. "Two cheers for flexible exchange rates," says Harvard economist Richard Cooper. "This has been a turbulent era—three oil shocks, two world recessions. The system didn't solve the problems, but it eased the adjustment."

The faults of the dirty float have been exaggerated. Currencies got out of line under Bretton Woods too—wrenching revaluations often were required—and the volatility in recent years has not prevented world exports from rising faster than GNP. The upsurge of protectionist sentiment has as much to do with the dynamism of the Pacific economies as with misaligned exchange rates. On the positive side, floating rates have let countries manage their own economies with salubrious effect when they did so wisely. West Germany, for example, was able to achieve low inflation while the rest of the world was inflating at double-digit rates during the late Seventies.

How to achieve more stable currencies under the float? The basic requirement is for governments to pursue more responsible—and predictable—monetary and fiscal policies. That means, for starters, reducing the huge imbalances, i.e., the U.S. current account deficit and the German and Japanese surpluses. Stronger international surveillance of domestic policies would also help—if only to spur international dialogue and bring more peer pressure to bear on wayward nations.

If currency fluctuations leave the growth of the global economy more uncertain, trade barriers can bring it to a halt. The world has come a long way since the trade-dead years of the 1930s, in good part because of the 90-country General Agreement on Tariffs and Trade (GATT)—the system of rules and en-



Rising non-tariff barriers

(Percent of manufactured imports covered)

SOURCE: WORLD BANK
ILLUSTRATION BY RENÉE KLEIN

The U.S. and Europe have both erected more non-tariff barriers against imports of manufactured goods during the Eighties. The barriers include outright prohibitions, quotas, voluntary export restraints, and burdensome licensing requirements.

E. JOFFET—COLLECTIF

■ FRANCE'S FANCIER OF FIXED EXCHANGE RATES: *Finance Minister Edouard Balladur longs for constraints.*

forcement that governs international trade disputes. Tariffs on manufactured goods fell from an average of 40% in 1947 to around 5% last year. Since the mid-Seventies, however, the trading system has been crumbling. GATT rules are increasingly flouted and non-tariff barriers have been multiplying in many countries (see chart). The U.S., the traditional champion of trade liberalization, has turned more protectionist.

GATT could be revitalized if negotiators bring their best to the so-called Uruguay Round of trade talks. Begun last year, the Round will continue until 1992; on the agenda are such critical problems as agricultural subsidies, restrictions on services, and non-tariff barriers. What should U.S. negotiators be focusing on? Revising Article XIX of the GATT is central to stemming the growth of non-tariff barriers. The article allows member countries to impose tariffs on imports that harm their domestic industries. A revision long supported by the U.S. and now on the agenda should serve as a safety valve for protectionist pressures by making it easier for countries to impose such tariffs. The trade-off: stronger requirements that the relief be in the form of a temporary, declining, and nondiscriminatory tariff—meaning that it would be applied, as required by GATT's most favored nation principle, to practically all nations.

Agricultural trade, exempted from most GATT rules, has bloomed into a major scandal. Price supports, import barriers, and export subsidies distort trade flows in nearly all industrialized countries. Without doing much for the small farmers they supposedly benefit, these policies make world prices less stable and leave consumers and taxpayers some $64 billion a year poorer.

The prospects for change are starting to look a bit more promising. The U.S. will probably bring the subject up at Uruguay, and other countries will listen. Most big producers, including the European Economic Community and the U.S., are strapped with large budget deficits, and most industrialized countries now are major exporters of agricultural products. Goals might include phasing out export subsidies and establishing some minimal level of access for imports in highly protected markets.

Bringing services under GATT would ease such restrictions as onerous visa requirements and prohibitions on foreign direct investment. The U.S. would be the biggest gainer, since it has a comparative advantage in financial services such as securities trading and bank lending. But freer trade would increasingly help developing countries like South Korea and India, who have an edge in such services as construction and computer software. U.S. trade negotiators are cautiously optimistic.

NOT ALL THE FORCES at work these days are narrowing the flows of commerce. Capital moves far more freely than goods. Barriers such as exchange controls and limitations on foreign ownership have been falling for a decade. Companies around the world have unprecedented opportunities to diversify risk and shop around for better deals than they can get at home.

The main worry, in fact, is that the global ebb and flow of capital is heading out of control. Foreign investors get burned in markets with lax disclosure regulations; deals fall through because of polyglot clearance and settlement systems. The biggest threat: huge multinational financial outfits that operate outside the purview of any single regulatory body. Says David Ruder, chairman of the Securities and Exchange Commission: "There is no place that the financial conglomerates' total risk position is revealed to regulators." Sober analysts can all too easily imagine a failure or fraud in one corner of a far-flung institution that could cascade through the entire system.

Regulators in most industrial countries are edging toward cautious efforts to harmonize regulatory standards. Says Robert Hormats, a vice chairman of Goldman Sachs: "The point is not to make regulation the same across all markets but to reduce disparities." In a first step late last year, the Bank of England and U.S. regulatory agencies, including the Comptroller of the Currency, the Federal Reserve, and the Federal Deposit Insurance Corporation, negotiated a 12-country agreement to standardize bank reserve requirements against bad loans.

The routine sharing of information among regulatory agencies in different countries is also key. The SEC has already negotiated such agreements with Japan, Britain, and Switzerland. Among other areas to concentrate on: clearance and settlement systems in securities markets, capital requirements for commercial and investment banks, and barriers to foreign competitors who wish to enter domestic financial markets. Investors need comparable international standards for accounting, auditing, and other checks on information. Further down the road, regulators dream of a system to prevent fraud, including international prohibitions on insider trading, market misrepresentation, and market manipulation. And what if there is a repeal of the U.S.'s Glass-Steagall Act or Japan's Article 65, which now prohibit commercial banks from underwriting most types of securities? Regulators will need to think about setting capital requirements for stockbrokers as well as banks.

Some critics of the international marketplace argue that only an overarching regulatory body—a United Nations of regulation—can supervise the marketplace adequately. But most experts dismiss such schemes. "The hope that there will be some quick international adoption of standards is a pipe dream," says Meyer Eisenberg, a securities lawyer with Ballard, Spahr, Andrews & Ingersoll. The likelier model is the bank reserve agreement: cooperative arrangements to harmonize regulatory standards, worked out cautiously and piecemeal.

Half a loaf would almost certainly work better than the whole. Majestic international institutions cannot by themselves wring excesses out of the system. Far better to enunciate modest goals and pursue them vigorously in a forum that allows all parties plenty of chances to ventilate differences and jawbone each other. Nothing will do more to nurture the powerful trend toward globalization than enlightened self-interest. ■

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"He's one hell of a salesman. But he can't manage."

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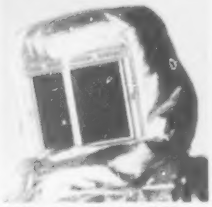

"That guy's dead."

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"As we grow, we don't present a threat to you. We just buy more from you."

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"Ernie Fleischer has only one major fault. He thinks other people are as smart as he is."

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"The stock market could average 10%-a-year increases to the year 2000."

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"He came across as a weak, wishy-washy, uncommitted manager."

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Cover: The reflective background, plus the stripes on Allen Jacobson's jacket and its insulation, are 3M products. Photo by Hans Neleman.

THE EDITOR'S DESK

JAY DICKMAN—MATRIX

Writer Nulty gets all fired up at work.

WHAT *really* goes on inside business? How does it work down close, and who are the people getting the job done? FORTUNE's writers and reporters give you an inside view, and so too do FORTUNE's photographers. One picture—of a new technological process, perhaps, or a corporate raider benignly at play—can be worth a thousand canned speeches or quarterly reports.

Business may not offer the flashy images of Yankee Stadium or Hollywood, but it can be a movingly visual subject. This belief is part of our heritage. Our very first issue, in 1930, contained Margaret Bourke-White's epochal pictures of subjects as varied as hog butchers and glass blowers. And look at some of the pictures in the current issue. You will see a startling image of a tractor being tested for noisiness in a huge sound room that looks like a cross between a concert hall and a high-tech lab. You will see six grown men grappling with one raw plank of wood, struggling to shape it into a piano. You will see a corporate raider sporting a cowboy hat and a black mask like some Sundance Kid. You will see 83 other pictures, from an early-morning commuter boat picking up workers on a Bangkok canal to the construction of an F-16 fighter jet.

To get these images, picture editor Michele McNally and her staff combed through thousands of photographs. Their mission, says McNally, is to "turn up the startling pictures that can stop readers in their tracks and entice them to read the story."

As soon as an article is scheduled, a picture researcher joins with the writer and editor to consider photo ideas. The researcher and McNally then match the assignment with the special talents of the more than 50 photographers FORTUNE fairly regularly calls upon. There is a vast difference between capturing, say, the glowing pictures of Asia's workers (by Robin Moyer for our February 15 issue) and the stark black and white images of America's underclass (by Mary Ellen Mark in our May 11, 1987 issue).

Other situations call for other kinds of expertise, such as the ability to persuade a busy executive to climb out from behind the desk and reveal at least some corner of his personality to the camera. All too often a photographer gets only the briefest chance to pull off a shot. Investor Warren Buffett, for example, once limited our photographer to a single roll of film. Treasury Secretary James Baker stipulated that he would pose for exactly ten minutes. Even so, recalls McNally, "we got a great picture of Baker against a backdrop of first-run U.S. currency. And we were out of there in exactly 11 minutes."

McNally has a name for the special kind of photographer who can consistently produce top work under such pressure: She calls them her bulldogs. We have quite a few bulldogs among our writers, too. One is Peter Nulty, whose byline appears on two stories in this issue. While he was in the midst of writing a story examining whether business people travel too much, he flew to Colorado to report the story accompanying our picture portfolio on how professionals are taught to douse fires and handle hazardous chemicals at a train wreck. Instructors at the Association of American Railroads training center were so impressed by Nulty's bulldog questioning that they invited him to play the role of a pushy newspaper reporter distracting students at a mock disaster. We are confident that Nulty turned in a properly pestering performance.

Marshall Loeb

MANAGING EDITOR

Picture editor McNally (center) focuses on business with her staff (from left): Todd James, Christopher E. Green, Prudence Heisler, Maureen Duffy Benziger, and Eric Godwin.

NINA BARNETT

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COMPETITION

THE NEW POWERS OF ASIA

The rise of Pacific nations causes doomsayers to see calamity for the West. A closer look reveals new opportunities for the U.S. and Europe.

■ *by Louis Kraar*

王 神
OH JIN
MONROVIA

PETER CHARLESWORTH—JB PICTURES

Three-cushion shot: *Japanese-designed Mitsubishi cars assembled in Thailand are driven aboard a ship bound for Canada.*

IN A FLASH, it seems, they have gone from scruffy, dependent countries to well-off producers of shoes, clothes, and transistor radios to wealthy powerhouses that appear to turn out the best of everything and threaten the economic well-being of the West. Can this be true? Will the next century really belong to Asia?

Certainly the region, defined here as the countries bordering the Pacific from Japan on the north to New Zealand 5,500 miles to the south (see chart, following page), is already a major economic force in the world. Japan's gross national product is more than 50% that of the U.S., and the Japanese economy is growing slightly faster. More important is the rousing growth of the four little tigers—Hong Kong, Singapore, Taiwan, and South Korea. By next year, according to the Organization for Economic Cooperation and Development, their total exports will reach 80% of Japan's.

Thailand is on the verge of becoming a tiger. Malaysia, the Philippines, Indonesia, and the People's Republic of China have great potential if they can solve internal problems. When the 21st century begins, the region may well account for more than 25% of the world's total GNP, vs. less than 30% for North America. The comparable numbers now are 20% vs. 28%.

The Rise of the East does not necessarily ensure the Decline of the West. This does not have to be a zero-sum game, despite what alarmists say. There is opportunity aplenty for the U.S. and Europe in an ever more prosperous Asia. Many Western companies already have plants there that send parts and finished products back home. A bit more than 50% of Singapore's exports to the U.S. are goods turned out by American companies. A wealthier Pacific region is a better market for all kinds of Western products. Says Lee Hsien Loong, Singapore's minister of trade and industry: "As we grow, we don't present a threat to you. We just buy more from you."

Then there is the moral dimension. Which country should we applaud: One like Singapore, where per capita income has risen from $2,810 to $7,673 in the past decade, unemployment is 2.8%, and almost everyone has a roomy, modern apartment? Or Burma, where per capita income is $200 a year and the economy is going backward after years of socialism? And which kind of country should we fear? Political stability flows from prosperity, not poverty.

Yet the doomsayers have some points. The region accounts for more than half the U.S. trade deficit, and the rise of Asia has hardly been a tidy, carefully controlled affair. Japan's brass-knuckles aggressiveness as an exporter is legendary. The insistence of many Japanese that anything Japan makes is superior to American products doesn't help. This view is also wrongheaded (see Managing).

Taiwan and South Korea have blithely pushed their U.S. trade surpluses to the point of pain. Koreans apparently believed they were doing what the U.S. wanted by earning foreign exchange to pay off the country's huge external debt. Some Korean executives wonder out loud why Americans, who fought a bitter war on their behalf, are not willing to help out now by accepting a lopsided trade balance. The laid-off worker in Ohio or South Carolina who thinks goods from Asia are to blame doesn't see it that way.

P. & G. BOWATER—IMAGE BANK

Singapore's skyscrapers *signal its status as an emerging global financial center.*

Rising Asian exports have triggered fear and anger in Washington and in the Common Market. Washington plans by January 1 to eliminate the tigers' duty-free privileges, which were originally designed to help poor countries. Richard Gephardt, a little-known Democratic Congressman from Missouri, has become a presidential contender largely on the strength of strident attacks on Asian trade policies. He struck a nerve with his contention that Americans would have to pay $48,000 for the modest little Hyundai auto, instead of less than $6,000, if the U.S. applied the same duties and local taxes that South Korea does. (The actual figure is closer to $30,000 and includes heavy taxes the Koreans levy on their own cars.)

The task for the West will be getting beyond the fear that has resulted from some Asian excesses.

The task for the West will be getting beyond the fear that has resulted from some Asian excesses to the very real opportunities that beckon. If the West does sink in the face of the rising East, it will be due more to its own mistakes than to actions of the Pacific countries. One of those mistakes would be failing to participate vigorously in Asian markets.

continued

Viewed as one huge trading bloc, the Pacific indeed looks scary. But this is no homogeneous region, and within its complexity are several trends that ought to be beneficial to the West. Japan has begun to moderate its dependence on exports by stimulating domestic demand. Though the pace is excruciatingly slow, it is bound to quicken even if politicians lose their nerve and try to go back to the old policy. Younger Japanese will keep pushing. With no memories of war or of rebuilding Japan, they are shorter on sacrifice and longer on consumption than their elders.

Increasingly Japan's market is being supplied by other Asian countries. In many cases consumer goods come from Japanese companies that have moved factories offshore in pursuit of lower costs, just as U.S. manufacturers have done in Taiwan and Singapore. But color TVs, VCRs, and microwave ovens are also pouring in from companies in the four tigers and Thailand. The more the tigers sell to Japan, the less they will drive up the blood pressure of Richard Gephardt and his brethren.

REPORTER ASSOCIATE *Wilton Woods*

THE OTHER good news for American business is that ambitious nations like Singapore and South Korea are eager for joint ventures that will help pull them up the technological ladder. To cite one example, government-owned Singapore Technology Corp. invested $5 million in Sierra Semiconductor, a California startup with proprietary technology for custom chips. That led to a $40 million joint venture in Singapore. The numbers may not be large, but the pattern is being duplicated again and again.

American companies already have a major presence. Apple, for instance, makes all of its popular IIe computers in a highly automated plant in Singapore, where labor accounts for only 2% to 3% of manufacturing costs. Some parts are made in Singapore, but many others are shipped in from neighboring Asian countries and from suppliers in the U.S. and Europe. General Motors and Ford have joint ventures with Korean automakers to build subcompact cars for the fast-growing local market and for export to America. IBM makes computers for the Japanese market in Japan (see Corporate Performance). But many of its U.S. products contain components from plants in Hong Kong and Taiwan.

Japanese companies invested an estimated $6 billion in various countries in the region last year, up from $2.3 billion the previous year, and the pace is quickening. Aiwa, a consumer electronics company, makes about half its

NORTH KOREA
SOUTH KOREA
JAPAN
CHINA
TAIWAN
HONG KONG
PHILIPPINES
BURMA
THAILAND
VIETNAM
LAOS
CAMBODIA
MALAYSIA
SINGAPORE
INDONESIA
AUSTRALIA
NEW ZEALAND

HOW THE COUNTRIES OF THE PACIFIC RIM STACK UP

COUNTRY	POPULATION in millions	GROSS NATIONAL PRODUCT Per capita	Total in billions	Avg. annual growth rate over 5 years
AT THE TOP				
JAPAN	122	**$19,371**	**$2,395**	**3.9%**
AUSTRALIA	16	**$12,051**	**$195**	**3.7%**
NEW ZEALAND	3	**$9,595**	**$32**	**2.2%**
HONG KONG	6	**$7,673**	**$44**	**7.3%**
SINGAPORE	3	**$7,673**	**$20**	**5.0%**
TAIWAN	20	**$4,823**	**$95**	**9.1%**
SOUTH KOREA	42	**$2,849**	**$120**	**10.1%**
RISING FAST				
THAILAND	54	**$898**	**$48**	**4.9%**
POTENTIAL STARS				
MALAYSIA	16	**$1,833**	**$30**	**3.3%**
PHILIPPINES	62	**$577**	**$33**	**−0.7%**
INDONESIA	175	**$401**	**$67**	**3.6%**
CHINA	1,062	**$349**	**$377**	**10.3%**
AT THE BOTTOM				
NORTH KOREA†	21	**$1,175**	**$23**	**N.A.**
BURMA†	39	**$200**	**$8**	**4.7%**
VIETNAM†	62	**$175**	**$9**	**N.A.**
CAMBODIA†	7	**under $100**	**N.A.**	**N.A.**
LAOS†	4	**$45**	**$0.2**	**N.A.**

PATRICK WARD—WHEELER PICTURES

Malaysia's capital, *Kuala Lumpur*

audio products in Singapore and ships 30% to Japan. The rest are sold in the local market and throughout the world. Sony has dispersed production of many consumer products, including compact disc players, among seven Asian nations. Toyota is gearing up in Thailand to make dies and jigs for pressing auto-body panels at 40% of the cost back in Toyota City. Minebea, one of the first Japanese companies to move production offshore, makes 98% of its ball bearings for the world market, including Japan, in Thailand and Singapore.

In Thailand alone, the number of investment applications by Japanese companies has nearly quadrupled since 1986, to 200 projects worth $353 million. Says Nimit Nontapunthawat, chief economist of the Bangkok Bank in Thailand: "It used to be that the Japanese built plants here only so they could avoid tariffs and sell in the local market. Now they build here because it's cost-effective."

Another favorable trend hardly noticed in the U.S. is that the countries Americans often fear most—the four tigers—are taking some helpful steps. When the dollar plunged against the yen, the South Korean won went down pretty much in step. Now, under pressure from Washington, Korea is allowing the won to strengthen, which will make U.S. products more competitive there. The tigers are also cracking open their markets a bit. In Taiwan, 8,000 U.S. cars were sold last year, an eightfold increase over the year before. South Korea (with an average urban family income of $12,000 annually) has the biggest middle class in Asia outside Japan. Both countries should become attractive consumer markets.

Though lumped together in the West, the four tigers are very different places. All they really have in common is their super growth rates, an average of nearly 8% annually for the past five years. Singapore and Hong Kong, both city-states, are probably the only genuine free-traders on earth. They thrive

Toyota is gearing up in Thailand to make jigs for pressing body panels at 40% of the cost back in Toyota City.

GROSS DOMESTIC PRODUCT Percent from manufacturing	LITERACY RATE	FORTUNE RATINGS			OUTLOOK
		Receptivity to foreign investment	Political stability	Income distri-bution	
29%	99%	C+	A	A	The shift to a more consumer-based economy, just now getting under way, should speed up.
17%	99%	A–	A	A	The lucky country will run out of luck if it can't create internationally competitive industries.
22%	99%	A–	A	A	The Labour Party is rapidly loosening state control of the economy, promising faster growth.
22%	88%	A	A–	B–	Look for a slowdown caused by political uncertainty; China takes over from the British in 1997.
27%	86%	A	A	A	A tightly controlled press keeps the lid on, and investors often lack timely business information.
45%	92%	A	A–	A	Enmity against the mainland is softening, but total reconciliation is still decades off.
30%	92%	B+	B	A–	The region's growth champ must prove it can handle democracy as well as industrialization.
21%	91%	A–	B	C+	Exports of manufactured goods and processed food are creating Southeast Asia's next NIC.
20%	73%	B	C	C	Ethnic tension and bitter political rivalries are putting brakes on a resource-rich economy.
25%	86%	B	C–	D+	The potential is still there. And so are the Communist insurgency and political disunity.
14%	74%	C	B	C	Burdened with a huge foreign debt and shrinking petroleum revenues, progress will be slow.
34%	69%	C	B	*	Ideology is making the march toward modernization a long one. But China keeps on trudging.
N.A.	85%	F	B–	*	Reliance on exports of arms and terrorism will bring increasing isolation to North Korea.
10%	78%	D–	B	*	Downgraded by the U.N. from developing status after years of socialism, progress is doubtful.
N.A.	84%	C–	B	*	New foreign investment law is most liberal of any Communist country, but no one is rushing in.
N.A.	75%	F	D–	*	Still torn by civil war and Vietnamese occupation, it will be an economic shambles for years.
N.A.	84%	F	C	*	Sleepy Laos is at peace, but its economy shows no signs of perking up under Communist rule.

†Estimated figures from latest data available. *By one measure, income is well distributed in most Socialist and Communist countries: Nearly everyone is poor. N.A. Not available

SOURCES INCLUDE MORGAN GUARANTY TRUST CO., THE WORLD BANK, THE OVERSEAS DEVELOPMENT COUNCIL, AND GOVERNMENT AGENCIES.

as international manufacturing and banking centers. Korea and Taiwan have concentrated on industrial development, sacrificing domestic consumption and spending on social welfare in the process.

Korean workers called a violent halt to their days of self-denial in a series of strikes last year. The result was pay raises averaging around 20%.

NOW KOREA and Taiwan are changing. Korean workers called a violent halt to their days of self-denial in a series of strikes last year. The result was pay raises averaging around 20%. The increases hardly strained the system; productivity rose 10% for the year. Political rioting and a tumultuous election late last year have given way to a period of calm under newly elected President Roh Tae-Woo. Korea appears to be successfully carrying out its first peaceful leadership change.

Taiwan ended martial law last July and is starting to invest in pollution control and public transportation. More encouraging was the orderly transfer of power early this year after the death at 77 of President Chiang Ching-kuo, Taiwan's second president and son of the legendary Chiang Kai-shek.

As rising wages and strengthening currencies push the tigers out of labor-intensive industries, their biggest challenge is finding new things to do.

PETER CHARLESWORTH—JB PICTURES

Full-grown in 50 days, *these chickens raised in Thailand will be exported to Japan.*

Taiwan is the most vulnerable. Its currency has appreciated 36% against the dollar since September 1986. Warns one cabinet member: "A lot of small businesses will be shut down this year." Manufacturers of shoes and textiles are moving to Thailand and the Philippines.

Simultaneously, Taiwan is getting into more sophisticated industries. Most dramatically, Stan Shih, 43, a charismatic engineer and entrepreneur, exports a full line of personal computer clones and peripherals under his own brand name, Acer. Shih's company, Multitech, has made a deal with Texas Instruments to assemble and service Multitech machines in the U.S. That's quite a role reversal, because Taiwan firms usually produce computers for American companies and put U.S. brand names on them.

South Korean companies have forged similar alliances with American partners. Their primary goal is access to U.S. technology. Goldstar relies on a joint venture with AT&T for semiconductor research. Daewoo has teamed with a flock of Western companies, including Northern Telecom of Canada and the Sikorsky Aircraft division of United Technologies.

THAILAND is on its way to being the next Asian NIC, or newly industrializing country. More politically stable than many of its Southeast Asian neighbors, it has become a magnet for foreign investment, both from the U.S. and Japan (see Personal Investing). The military-dominated regime of Prime Minister Prem Tinsulanond has been in power for eight years. Despite a few coup attempts by military factions, the Thais are exceptionally unified by a popular monarchy and Buddhism.

An unbroken history of independence has left the Thais free of colonial hang-ups. Perhaps for that reason, Thailand has managed to make the most of the entrepreneurial vigor of its ethnic Chinese by treating them as Thais, not aliens or second-class citizens. Says a Thai corporate executive: "There are obvious political problems in the Philippines, Malaysia is torn by ethnic tensions between its Chinese and Malays, Indonesia has a lousy work ethic and serious corruption, and

The future *is represented by fiber-optics production at Samsung in South Korea.*

ANTHONY SUAU—BLACK STAR

Singapore has a labor shortage. Where else can investors go?"

Plentiful labor and flexible regulations allow factories to operate around the clock. Says Makoto Ikeda, director of Minebea's operations in Thailand: "Productivity is higher in our plants here than in Japan because the workers are only about 20 years old, much younger than in Japan." Working for wages of under $3 a day, industrious Thais are turning out Nike shoes, Arrow shirts, semiconductors, and toys. The country's only serious drawbacks are a dearth of supporting industries and congestion in Bangkok. The Thai capital has some of the worst traffic jams on earth.

With its tolerant culture that embraces serene Buddhist temples as well as licentious nightspots, Thailand is also a favorite destination of vacationers. It earned over $1.7 billion from tourism last year, almost twice its foreign exchange from rice exports.

From its lush farmland, Thailand gets a cornucopia of agricultural exports. It sells Japan tons of frozen chickens produced by farms that look like assembly lines. Thailand is a major supplier of canned pineapple to the U.S., much of it produced by Dole, the American food processor. The Thais are also the largest suppliers of canned tuna to the U.S., even though most of it is caught far from Thailand.

While foreign investment has been a major factor in Thailand's rise, the country has produced some dynamic enterprises of its own. Dhanin Chearavanont, 49, has quietly built a small family feed business called Charoen Pokphand into an international group with 12,000 employees that operates in 12 countries and had sales last year of $1.7 billion. CP Group runs a high-tech chicken operation that exports to Japan and Europe. Chearavanont plans to mass produce pork, in a joint venture with Oscar Mayer of the U.S., and shrimp, with help from Mitsubishi of Japan. The company also has a joint venture in China with Continental Grain of the U.S.

Thailand's largest exporter of manufactured goods is another local group of companies called Saha-Union, which has diversified from textiles to Nike shoes. Damri Darakananda, 55, started the business in 1961 as a joint venture with YKK of Japan to make zippers, but insisted on using his own brandname, Venus. He expanded into thread, buttons, and plastic items—then bought out YKK. Saha-Union is an IBM computer dealer as well and holds the Computerland franchise in Thailand. Says Darakananda: "We're thinking ahead. Korea and Taiwan first exported textiles, then moved to electronics and computers. That's the direction we want to go."

Working for under $3 a day, industrious Thais turn out Nike shoes, Arrow shirts, computer chips, and toys.

OTHER NATIONS in the region, of course, have much economic potential. Unleashing the energies of over one billion Chinese could create a new industrial powerhouse and a mammoth market. The realities of doing business in the People's Republic, however, can be discouraging. When an Australian investor in the new Ramada Renaissance Hotel in Guilin tried to prevent stealing by workers, the government accused him of violating the employees' human rights. Despite well-publicized reforms, the country has hardly gone capitalist. Almost all prices remain under state control, and party bureaucrats regularly meddle in factory management. Says William Colby, former director of the Central Intelligence Agency who is now an international lawyer: "China will not play a major role in the world economy for the foreseeable future."

Not surprisingly, Asian businessmen, especially ethnic Chinese, are better than Westerners at carving out niches in the People's Republic. Some 30 textile plants in South China are

The past *is handwork in Hong Kong.*

LINCOLN POTTER

PETER CHARLESWORTH—JB PICTURES

Commuting in Bangkok: *Water taxis avoid the world's worst traffic jams.*

Malaysia, Indonesia, and the Philippines could become booming economies, but the day seems far off.

owned by investors in Taiwan in deals funneled through Hong Kong. The Nationalist regime in Taiwan still officially prohibits such investments but has been willing to look the other way. South Korean companies are increasing their trade and investment with China too, by way of Hong Kong.

Three resource-rich Southeast Asian nations—Malaysia, Indonesia, and the Philippines—could become booming economies, but the day seems far off. Malaysia is a leading exporter of rubber and palm oil. The government has tried to expand beyond raw materials into heavy industry with little success. State-owned auto and steel industries have lost heavily. The biggest problem is tension among ethnic Malays, about half the population, and Indians and Chinese, who make up the rest. Prime Minister Mahathir Mohamad has been pushing an affirmative action program that, among other things, is designed to give Malays a 30% stake in all enterprises. Since most Malays lack capital and business experience, the state winds up buying into companies on their behalf.

Indonesia has long relied on revenues from Pertamina, its state-owned oil company, to support the country's 170 million people spread over 6,000 islands. In the process, it acquired some wasteful habits. Over the years, President Suharto has given monopolies to relatives and friends for the import of steel, plastics, cement, and other basic items. The result: unnecessarily high prices for raw materials. A recent survey of U.S. investors conducted by a regional business group gives Indonesia an unfavorable rating compared with other countries in Southeast Asia. To Suharto's credit, he turned over management of the notoriously corrupt customs service to Société Générale de Surveillance, a Swiss survey company.

THE PHILIPPINES has yet to recover economically from the Marcos years. President Corazón Aquino has been seeking foreign investment and some is trickling in. But Communist insurgents in the countryside, political feuding, and pervasive corruption remain big distractions. Aquino herself has survived at least five coup attempts. Most shocking, the country's sluggish bureaucracy has prevented it from spending a backlog of over $1 billion in foreign aid.

Above all, the top performers of the Pacific are demonstrating that countries can adapt and grow by being part of the international economy. Nothing symbolizes that better than Vietnam, of all places, seeking foreign investors to help reinvigorate its backward economy. As Singapore Prime Minister Lee Kuan Yew puts it, Vietnam won its war, but lost the peace, while the NICs "have succeeded in creating more prosperous and more equal societies." The West should stop being afraid of the Pacific challenge and get down to business in a new frontier. F

R. IAN LLOYD

Beaming in Taiwan: *A happy marriage starts in the photo studio.*

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FORTUNE

THE INSIDE STORY OF WARREN BUFFETT

**The legendary
investor is also
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he does it.**

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"I want to be in businesses so good that even a dummy can make money."

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"The key to managing 600 volunteers was to help them gain skills that made their efforts more personally rewarding."

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"They view him as Darth Vader. No matter what this man does, he is perceived as being up to no good."

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"Department stores have been charging customers more and giving them less. That is not a sure-fire formula for success."

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"Personally, he's tight. But he spends our money prodigiously."

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"I figure out what's fair, and then I double or halve any numbers and start from there."

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THE EDITOR'S DESK

LOUIS PSIHOYOS

At the table with writer Loomis, Buffett demonstrates "the strongest part of my game."

JOURNALISTS, it has been said, should not have friends. Being human, we do. In the cover story beginning on page 26, you will be treated to an article that is a product of a friendship between the subject, famed investor Warren Buffett, and the writer, Carol Loomis, of our board of editors.

Loomis and Buffett met in the mid-1960s through her husband, John, then an institutional salesman for a Wall Street firm. After reading a small item about this man Buffett, who was 35 at the time and just beginning to gain a national reputation, John called on him in Omaha, hoping to drum up trading orders. On returning to New York, John told Carol, "I think I have just met the smartest man in the country." Since then, Carol says, "neither of us has found reason to revise that appraisal."

One interest the Loomises and Buffett share is bridge, and when he comes to New York for board meetings, they often play at the apartment of the Washington *Post*'s Katharine Graham, who is a friend of all. Says Carol: "I regret to report that over the years he's won more often than we have." Listen, Carol, take a look at the picture and maybe you'll see why.

For ten years Carol has worked with Buffett on his witty and wise annual report. Says she: "Warren writes it by hand on yellow pads. I weigh in as editor. He's smart enough to know that everyone needs an editor, though sometimes I could kill him for ignoring my suggestions. Anyway, what I do on the report a lot of people who know something about both business and writing could do, as long as they had Warren's trust. What *he* does, nobody else could come close to doing."

Until now Carol has refrained from writing a full-scale article on Buffett, both because of their friendship and because of the fact that she is a shareholder in his company, Berkshire Hathaway. I got to thinking that her reticence was robbing our readers and prevailed upon her to step up to the job. She had the insight to see that Buffett's success as a manager was an unreported phenomenon, and her story is filled with facts about him not before printed. I think that, upon reading this unusual "inside" article, you will be glad I persuaded her to write it.

Marshall Loeb
MANAGING EDITOR

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LOOKING AHEAD

WHERE WILL WE PUT

Not in my neighborhood, says a rising chorus of citizens who don't like landfills and incinerators. Now that disposal costs are rocketing, more recycling is inevitable.

■ *by Faye Rice*

BARGES FORLORNLY roaming the seas in search of a place to unload are suddenly the stuff of headlines. The U.S., whose seemingly infinite dumping space helped foster history's biggest throwaway binge, is running out of places to put its trash. The immense and growing volume—200 million tons a year of household and commercial refuse, plus untold industrial waste—would have spelled trouble sooner or later. The crisis is already here because states and localities, newly concerned about water contamination, methane gas leaks, and sheer unsightliness, have taken to wholesale closing of dump sites.

Nationwide, the number of landfills has dropped from an estimated 10,000 in 1980 to 6,500. One study indicates that all but four states are running out of suitable locations. Landfills in Connecticut will be nearly full by 1990, those in the Los Angeles area by 1993. Incinerators have hardly dented the problem. Widely hailed as the answer a few years ago, many are running into a hornet's nest of resistance from environmentalists and community groups. Instead of burning trash, opponents say, the U.S. should follow the lead of Japan and Europe, where recycling drastically cuts the tonnage that must be disposed of.

The solutions to the growing mess, which include recycling as well as burning under carefully controlled conditions, will not be cheap. So steeply has the cost of dumping climbed, however, that the alternatives have begun to look cheaper. In Philadelphia, disposal costs per ton have nearly tripled since 1983. In New Jersey, half of all household waste is now trucked to out-of-state landfills up to 500 miles away. Despite a tough new recycling law that has reduced the total volume, annual collection and dumping costs for a household in suburban Union County near New York City have leaped from $70 to $420 just in the past 12 months.

Those costs, passed along in the form of higher taxes or fees paid to private sanitation firms, are causing howls of pain throughout the Garden State. In some low-income neighborhoods, trash is piling up on sidewalks because homeowners cannot afford the skyrocketing fees. Already, the idea of paying for waste disposal by the bag—with sanitation men loading only bags affixed with stamps purchased in advance—is being considered as a way to distribute the costs fairly. The less you toss, the less you pay.

Across the nation, the torrent of waste has run smack up against the mind-set known as NIMBY—Not in My Back Yard. Establishing a new landfill arouses stiff local opposition. Shipping trash across state lines to existing sites has become a lucrative business for truckers, but the mood in communities at the receiving end is not hospitable. About 200 demonstrators carrying colorful placards de-

REPORTER ASSOCIATE *H. John Steinbreder*

Stop
STOP!
War On
Out of State
Wastes
Out of State
TRASh!
West Virginia
Stand Up and
Fight
To Save Our
Heritage!
Protect

JOHN KAPLAN

Dumped on: *West Virginians protest at the state capitol against incoming Northeastern trash.*

In a nightmarish scene *worthy of Hitchcock, gulls*

PHOTOGRAPH BY NINA BARNETT

ALL THAT GARBAGE?

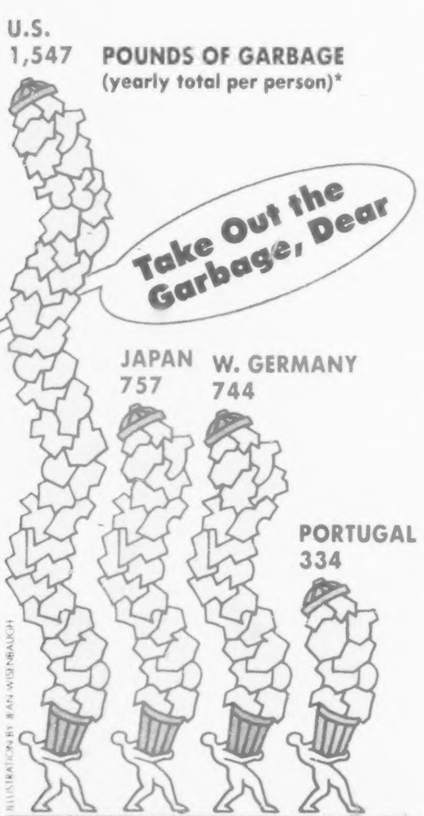
t at New York City's huge Fresh Kills landfill on Staten Island. One of two remaining landfills in the city, it handles 25,000 tons of garbage daily.

MIKE CLEMMER—PICTURE GROUP

Interstate trash traffic *is spreading in the South, where a truck crosses into Alabama.*

claring WAR ON OUT-OF-STATE WASTE, gathered at the capitol steps in Charleston, West Virginia, several weeks ago to protest the trucks that arrive daily from the Northeast to disgorge their loads. The message: "We're desperate to find a solution before it's too late." In the retirement community of Zip City, Alabama (population: 600), citizens who live off Social Security checks are trying to stonewall a proposed landfill for trash from out of state, which would obliterate 225 acres of rolling pasture.

When state and local governments do allow new landfills, they are becoming fussy about their operation. As the trash piles grow, it is customary to cover them with layers of topsoil. But in Pennsylvania, landfill operators must also line new dumps with such watertight materials as clay or thick polyethylene, and install drainage systems to test and treat whatever oozes through these barriers before it can taint ground water. Concerned civic groups assert that the landfills all leak. "There is no such thing as an impermeable liner," concedes Roger Carrier, vice president of engineering at Chambers Development of Pittsburgh, a fast-growing landfill operator. He argues that the real issue is the *rate* of leakage. "If it is fast you're in trouble, but if it is slow it evaporates before it can become a problem."



*Includes household and commercial but excludes industrial waste
SOURCE: NATIONAL SOLID WASTES MANAGEMENT ASSOCIATION

ILLUSTRATION BY JEAN WISENBAUGH

The NIMBY wrath has come down hardest on proposed new incinerators designed to alleviate the landfill shortage. The plants, employing the "mass burn" technique developed in Europe, convert garbage to energy. To hold down costs, incinerator operators do not bother with the costly mechanical separation of materials that doomed another type of U.S. plant. Except for a few bulky or dangerous items culled from the incoming trash, everything is burned without sorting, to produce steam and electricity.

ABOUT 40 mass-burn incinerators are operating and 200 more are under construction or planned. New York City wants to build one in each of its five boroughs, at a total estimated cost of $3 billion. But fierce opposition is widespread. Inner-city blacks and white professionals formed an unlikely alliance in Los Angeles and forced Mayor Tom Bradley to shelve his proposal for three mass-burn facilities. Two of the mayor's choices for city council seats lost in last spring's election, partly because they supported incinerators. "I don't think we will see an incinerator in the Los Angeles area for at least ten years," says Michael Miller, manager of the city's solid waste task force.

Philadelphia owns two old incinerators that nearby neighbors have campaigned for 20 years to shut down. Mayor W. Wilson Goode's answer is to add a giant new $350 million mass-burn facility. In his successful reelection bid last year, Goode urged voters to oust David Cohen, a city council veteran who opposes the burner. Cohen got the biggest victory vote of his career.

Incinerator fighters point to potential air and water pollution, as well as the noise and increased traffic from trucks delivering trash. Unless the fire is kept above a certain temperature, household items such as some solvents and plastics can produce highly toxic chemicals called dioxins, which are carried up through the smokestack.

Incinerators drastically shrink the garbage delivered to them—up to 90% by volume and 75% by weight—but leave millions of tons of ash that must be buried. Toxic metals such as lead and mercury are more concentrated in the ash than in the original garbage, and can seep into ground water from poorly sealed disposal sites.

So far the environmental record of mass-burn incinerators has been mixed, with some objectionable practices but no serious health scares. The economics vary on a plant-by-plant basis. Companies eager to build and run the facilities held out the promise to cities and towns that they would easily cover their costs. The revenue would come from "tip-

Barred from burying *ash locally, a new Vermont incinerator is sending it 70 miles away.*

KENNETH JARECKE—CONTACT

ping" fees—the amount charged per ton of trash accepted from the community—plus energy sales. For the leading companies that run them, the incinerators have generally been profitable. But mastering the technology has not been easy, and some communities have wound up with a bigger disposal bill than they had anticipated.

THOUGH MASS-BURN works efficiently in Europe, the technology is not easily transferable. U.S. trash, for one thing, burns differently because it contains more plastics and toxic materials. The employees who run U.S. incinerators have also received less training than their European counterparts.

The mass-burn industry's leading operators are Ogden Martin and Wheelabrator Environmental Systems. In the early years of Wheelabrator's first incinerator, which began operating in 1975 in Saugus, Massachusetts, the company had to replace the superheaters and redesign the burners and grates at a total cost of $11 million. "We had a lot of downtime during the early years," acknowledges public affairs director Kevin Stickney, who refers to the Saugus plant as the "University of Waste-to-Energy."

Newer plants have not yet licked all the problems. The mass-burn incinerator for the county of Tuscaloosa, Alabama, lost an average of $20,000 a month in its first 34 months of operation. When the plant wasn't running, the county couldn't honor its agreement with Uniroyal Goodrich, which had contracted to buy steam for a tire plant. In the spring of 1986, Tuscaloosa County's solid-waste disposal authority filed suit against the plant's operator, Consumat Systems of Richmond, Virginia, charging breach of contract and negligence in design and operation. In an out-of-court settlement, Consumat agreed to repair equipment at its own expense and to forgive unpaid bills in return. The tipping fee has also been raised.

Community leaders often fail to read the fine print in the deals they negotiate with incinerator companies. Many have signed "put or pay" contracts that guarantee the operator a minimum tonnage to keep the fires going. If the trash intake is below the minimum, the community pays compensation.

The local utility is required by federal law to buy electricity from the incinerator. The price per kilowatt-hour, however, can be nearly twice the utility's costs at its own power stations. If the price is challenged by regulators, the community may have to make up the lost income to the incinerator operator. Such was the experience of Rutland, Vermont, home of an embattled new incinerator built by Vicon Recovery Systems of Butler, New Jersey, and financed by the Industrial Bank of Japan.

"Vicon got its foot in the door by promising a low tipping fee of $16.50 per ton," recalls Patricia Donnelly, a Rutland alderman who was once an enthusiastic supporter of the plant. "Vicon also claimed to have a firm electric contract." Vicon notes that in 1984 Central Vermont Public Service agreed to pay 12.02 cents per kilowatt-hour for 26 years. But in 1987, when the incinerator was nearing completion at a cost of $35 million—far above the original budget—the Vermont Public Service Board vetoed the rate as excessive. "We had no choice but to go back to the utility and settle on a short-term rate of 3.06 cents until we resolved the long-term rate," says Joseph J. Domas Jr., president of Vicon. Vicon raised the tipping fee nearly threefold to make up for the lost income, to $45 a ton.

The controversy rages on in Rutland. Air pollution does not appear to be a major problem. That's because the incinerator is one of only six in the U.S. equipped, at the state's insistence, with scrubbers. Aside from innocuous steam, a spokesman boasts, emissions from the plant are less than from just one of the state's ubiquitous woodburning household stoves. The hot issue is how to get rid of the incinerator's ash.

In tiny Sunderland, 35 miles away, residents are fighting plans to inter the stuff in a landfill near the banks of the pristine Battenkill River, a treasured trout stream. Half Sunderland's adult population turned out for meetings to oppose the idea. They won the first round in court last fall when a judge ordered Vicon to stop work at the landfill site. In the meantime Vicon is trucking ash 70 miles to a landfill in Massachusetts.

Fanning the furor is the fact that, upon testing, incinerator ash often turns out to be as toxic as hazardous waste from industry, which must be buried in double-lined landfills. J. Winston Porter, assistant administrator of the U.S. Environmental Protection Agency, thinks incinerator operators should be spared the rigamarole of obtaining hazardous-waste disposal permits and that some ash requires only single-lined landfills.

Environmentalists insist that only double-lined landfills will do. In an effort to get all ash classified as hazardous in Massachusetts, they have left buckets of it on Governor Michael Dukakis's front steps. It came

NINA BARNETT

NINA BARNETT

KEN KERBS

Recycling on the Job

Doing her bit under New Jersey's recycling law, Berbara McCormick, an executive secretary at Warner-Lambert's headquarters in Morris Plains (top), puts recyclable paper in a separate basket. Employees in an AT&T warehouse (center) gather collected paper, including shredded confidential documents, and the Shannon Lounge in Hoboken (bottom) makes good use of a "bottle buster."

from an area next to a salt marsh, where Wheelabrator has been dumping for years.

Several states have passed laws requiring scrubbers on new facilities. Massachusetts has also mandated scrubbers for some older plants that lack them. Wheelabrator, which resisted this requirement, has warned that it will have to boost the tipping fee at Saugus by at least $25 a ton, to about $50, to cover the cost of a scrubber.

The EPA, criticized for dragging its feet in drafting guidelines for incinerators, is trying to catch up. "There is no question we have been behind," says Porter. The agency's new regulations are not expected to take effect before 1990, but Congress will probably act much sooner. Two pending bills would establish strict federal standards for emissions and for the handling of ash. Democratic Representative James Florio of New Jersey is the sponsor in the House; Democratic Senator Max Baucus of Montana is pushing the bills in the Senate.

Communities that fight incineration say they favor a stepped-up recycling effort first. Only then, they contend, will mass-burn be justified. That was to be the nation's agenda in the 1970s. Critics argue that cities and towns have impeded the recycling effort by putting a priority on incinerators and committing all garbage to them.

The disposal programs in land-poor Japan serve as a model for the world. According to Allen Hershkowitz, author of a book on the subject, 50% of the country's household and commercial waste is recycled, 16% goes to landfills, and the remaining 34% is incinerated. (In the U.S., 86% winds up in landfills.) In the best-run Japanese programs, residents diligently separate waste into seven categories, which are collected on different days.

SKEPTICS CONTEND that such an ambitious approach would flop in the U.S. because Americans are too lazy. Incinerator foes counter that most Americans will change their habits once they realize that recycling can add years of life to landfills and save tipping fees. In just two years, without state support, the rural town of North Stonington, Connecticut, has reduced the volume of waste that goes to the local landfill by two-thirds.

When 65-year-old Milly Zantow heard that space was running out at the town dump in North Freedom, Wisconsin, she cashed in an insurance policy and set up her own recycling center, staffed mainly with volunteer senior citizens. Zantow has just a few pieces of crude equipment—a magnet for pulling out tin cans, a baler, a glass crusher—but reprocessors who melt the stuff down take all the sorted and preprocessed materials her operation can supply.

Similar recovery programs are under way in urban areas. The low-income city of Camden, New Jersey, has one of the best in the country. Recycling authority Hershkowitz recently formed a venture called Municipal Recycling Associates in Mount Vernon, New York, to help municipalities set up programs and raise capital for startup companies that separate recyclable materials from trash.

NINA BARNETT

The disposal programs in land-poor Japan serve as a model for the world. Half the country's household and commercial waste is recycled.

Depending on the material, finding a market is not a major problem in today's economy. Peter Karter, president of Resource Recovery Systems of Old Lyme, Connecticut, has plenty of takers for his processed glass and metal. His list of clients includes Owens-Illinois, Foster-Forbes Glass, and companies such as AMG Industries, which remove the tin from steel cans so they can be melted down. Karter has two operations, but is starting new centers in Massachusetts, upstate New York, Long Island, and Manhattan to meet the demand.

Recycling has a catch: A stepped-up commitment could produce a glut of certain materials. Prices of such items as scrap iron, copper, and old newsprint are notoriously volatile. Tales abound of high-minded recycling efforts that foundered when markets dried up. As in Japan, some sort of government subsidy to scrap handlers is necessary. "The major question is whether or not the government will offer incentives," says security analyst Barry A. Mannis of Shearson Lehman Hutton.

Whatever the amount needed, Hershkowitz says, it would be far less than the alternatives facing many communities now: paying higher-than-anticipated tipping fees at incinerators or shipping unsorted trash farther into the hinterlands for burial at ever higher costs per ton.

One of the nation's most stringent recycling laws was passed last summer in New Jersey, which aims to cut by 25% the tonnage that must be disposed of. The state wants 17 incinerators built to burn the rest and end the need to export trash to Pennsylvania and beyond. Critics contend that the recycling target is too modest and that a more ambitious program would make some of those incinerators unnecessary. Many cities and towns, such as Camden and Woodbury, have already surpassed the 25% goal.

Because New Jersey county officials are required to designate just three items to recycle, incinerator foes say, the law puts an artificial limit on recycling. The typical county requires households to set aside aluminum cans, glass, and newspapers for separate curbside collection (but not magazines, whose coated papers are difficult to recycle). The inclusion of plastics and mixed paper—mainly junk mail—could divert another 60%.

Most experts agree that a combination approach is needed, giving priority to recycling and burning in that order. Deposit laws for beverage containers, which nine states have enacted, partly to curb litter, would abet the recycling effort. Industry needs to undertake a major redesign effort to cut excess packaging. The quantity thrown into the waste stream has increased 80% since 1960 and now accounts for one-third of all household trash. Items containing toxic materials should be handled separately, an idea the incinerator industry supports.

Even with maximum recycling, a lot of incinerators will be needed. Scrubbers and careful ash disposal should be made mandatory. "Companies can no longer build a plant and worry about the ash later," adds John J. Sullivan, Wheelabrator's president and chief executive officer. "We must have a 20-year guarantee for landfill space up front." Some dumping will always be necessary, but must be done under safeguards. The frontier days are over. When it comes to tossing things, at least, America has run up against limits. ■

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FORTUNE

THE FORTUNE 500

THE LARGEST U.S. INDUSTRIAL CORPORATIONS

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FORTUNE

"I can't figure out how to have children. A grandma or my employees would have to bring up the babies." PAGE 66

"I'd rather have it etched on my tombstone that I contributed to shareholder value." PAGE 83

"It used to be you'd walk into a house, go sniff-sniff, and *know* they have a cat." PAGE 107

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wavers was taken by Neil Selkirk.

THE EDITOR'S DESK

JOHN ABBOTT

The 500 team: (from left) Alpert, Benjamin, Kiechel, Kirsch

CHRISTMAS comes early at FORTUNE—in April. The gift package you hold in your hands is an especially rich issue that we hope you will use and enjoy both immediately and all year long. In a large selection of stories, you'll find answers to some tantalizing questions: Is the big industrial corporation washed up? Is business tumbling too deeply into debt? Do today's CEOs think they are working harder than their predecessors? How are dual-career couples coping with the pressures of executive life?

And I haven't even mentioned the FORTUNE 500. The 34th annual edition of our much-imitated directory of the largest U.S. industrial corporations begins in the special section on page 357. For months, executive editor Allan Demaree has been pondering ways to make the list even more informative, while designer Jean Held has highlighted the most significant corporate performances—which companies did best and worst—and made the tables more attractive and readable. We've added yet more data—we now give you some 20,000 pieces of information. One new datum: last year's change in the number of employees at each company—a telling figure in this age of restructuring.

This being also the age of computers, you might think that all we need do is press a few buttons on a PC and out pops the directory. Alas, life is not so simple. Behind the 500 are months of work by dozens of our colleagues, headed by chief of reporters Evelyn Benjamin. She is so enthusiastic that she says, "The FORTUNE 500 issue is as hot as *Sports Illustrated*'s bathing suit issue." Well, maybe, but in case you also want the latest on what's "in" in swim, see News/Trends. (You won't believe it.)

Benjamin and her crew started working on the 500 back in November, when reporters Claudine Knight and Kathleen C. Smyth began getting information on stock splits and dividends. In January reporters Sandra Kirsch and Mark Alpert started collecting the names of some 1,000 candidates for the list, using sales and earnings reports, news stories, and several other sources. We then sent to likely prospects a 19-item questionnaire on such data as sales, profits, and assets.

JOHN ABBOTT

MICHAEL SALAS

GWENDOLYN CATES

Reporting behind the scenes: Guzzardi, O'Reilly, Worthy

Soon after, a dozen staffers got on the phones, both to cajole data from late-reporting companies and to double-check what was already submitted. Since the daylight hours were used to call the companies, our team had to work well past many midnights to check the numbers and feed them into computers. Consultant Mel Pera organized our first trial computer run on Saint Patrick's Day. As the press deadline approached in early April, 13 reporters were checking and proofreading the numbers. Finally, our editorial technology chief, J. Randall Sizemore, supervised the complex typesetting of the lists.

Going beyond and behind the numbers, several stories in this issue examine the state and future of large corporations in the U.S. Walter Kiechel, who as issue editor planned and supervised many of the articles, put the key question: "After so much restructuring, where are they? Is all the action in the smaller companies?" In the story that begins on page 50, writer Walter Guzzardi provides a somewhat surprising answer: Although the 500 companies' share of the gross national product has been declining, their share of corporate profits has been surging—"and they demonstrate the validity of the old maxim that it's a great advantage to be big."

Few think small is beautiful when it comes to personal wealth, a subject we address in a rare and revealing portrait of Chicago's creative but secretive Pritzker family. Though press-shy, six members of the family ultimately agreed to be interviewed by writer Ford S. Worthy. Another behind-the-curtains story I recommend to you is writer Brian O'Reilly's article on Japanese managers stationed in the U.S. Having visited 29 of them around the country, he finds them strangely torn between cultures—more critical of their own country, and more complimentary of America, than you might think.

This is the kind of reporting, we believe, that makes FORTUNE special. With that in mind, I'm happy to tell you that FORTUNE has been selected as a finalist in two categories for the National Magazine Awards, the Pulitzer Prizes for magazines. In the Public Interest category, the judges have named Ford Worthy's cover story "The Coming Defaults in Junk Bonds" (March 16, 1987). And the judges have selected FORTUNE as one of five finalists for general excellence in magazines with a circulation of 400,000 to one million. The awards will be announced late this month, and win or not, we're honored to be in the finals.

Marshall Loeb
MANAGING EDITOR

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BIG CAN STILL BE BEAUTIFUL

You'd think the large corporation was doomed. It's moving too slowly, goes the refrain, destroying jobs, losing clout. Partly true—but don't say goodbye just yet. ■ *by Walter Guzzardi*

THE BIG AMERICAN corporation is in wrenching transformation, affected by elemental forces rushing upon it from a powerful array—global competition, technological change, highly mobile financing, daring entrepreneurs, ambitious shareholders, and, not least, the corporation's own history. These forces are as inexorable as the movement of continents, but far more swift: Such quick tests, such speedy punishments for failure, and such rapid rewards for success are without parallel in any other era.

As restructuring, the primary instrument of all this change, has gained momentum, attention has focused on its more sensational features: the sudden wealth of the raiders, the debt-heavy buyouts, the bust-ups, and the disappearance from the FORTUNE 500 of famous old names, such as International Harvester and American Can, gone forever or unrecognizable. These dramatic changes in configuration have encouraged the belief that the big corporation is an endangered species (the cliché about dinosaurs usually enters at this point) and must shrink or die.

Massive size *helps keep Boeing No. 1 in jets.*

That analysis fails to acknowledge the performance of big, established companies that have used restructuring to augment their strengths and skills and that, far from shrinking, have expanded the range and variety of their activities. Such companies possess "size, scope, and management," the three qualities that Alfred Chandler Jr., the noted business historian at the Harvard business school, asserts were essential to the triumph of American industry in the past. They remain essential to corporate success today.

Peace be on you, O ye dinosaurs: These companies continue to build size on size and diversity on diversity—and they demonstrate the validity of the old maxim that being big is an enormous advantage. Their recent records have contributed substantially to the improved performance of the 500, which by many measures are on a roll (see the introduction to the 500, page D1).

Despite all that good news, no golden age lies ahead. The role of the big industrial company in American society may be shrinking: The 500's sales as a percentage of the gross national product have been in descent since 1980, dropping last year to 42%. Employment has dropped similarly: Last year the 500 employed 11% of the civilian work force, less than in 1954, the first year of the FORTUNE 500. Restructuring, in so many places a source of rejuvenation, has paradoxically contributed to those declines. But paradox may don cap and bells: The lessening influence of the 500 in American economic life may not bode ill for corporate giants.

When it comes to profits relative to the rest of the corporate world, the 500 have rarely if ever done better, in part because of restructuring. After-tax profits of the 500 in 1954 amounted to 39% of after-tax profits for all U.S. companies. That share grew over two decades, reaching 50% in 1973. Then the 500 began to lose ground, slipping to 41% in 1977, one of the poorest relative performances since the list began. The turnaround was more swift than the slow decline: The 500 took in 59% of all after-tax corporate profits in 1984, and last year their share leaped to 66%—two-thirds of the profits of the whole American corporate universe.

Credited with aiding and abetting is a group of select big companies in markedly different industries, but all distinguished by managerial talent and remarkable recent growth in profits. Gulf & Western and Borden are reformed conglomerates; Heinz is diverse with strong market positions; Boeing and GE are sui generis but stand as exemplars of how huge size, fine reputation, and long corporate experience, even in the age of restructuring, contribute to high profits. Collectively, these companies show that Chandler's size, scope, and management remain the most potent factors in the performance of big companies.

Consolidation and diversification have proceeded concurrently with substantial success at Borden. The company was once what Chief Executive Romeo Ventres calls a "smorgasbord of companies—we had women's clothing, fertilizer, a phosphate rock mine, perfume, a fast-food chain . . ." All that has been peeled off and the company's traditional strength in food reasserted. Part of that strength is a recently achieved championship position in pasta—a business in which

REPORTER ASSOCIATE *Patricia A. Langan*

Care to compete *against GE in the fluorescent light business? This facility in Bucyrus, Ohio, produces 7,000 lamps an hour.*

EDIBLE
EDIBLE
EDIBLE
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EDIBLE

LOUIS PSIHOYOS

some advantages of size had been overlooked. Ventres came from Borden's chemical division and points out: "In chemicals you make all your money by being very, very cost oriented—that's all you've got to compete with—and volume is what holds costs down. In food you aren't oriented that way." It turns out that you should be.

STARTING FROM SCRATCH nine years ago, Borden has created a pasta operation that keeps 14 U.S. plants running 24 hours a day, seven days a week. The company buys 800 million pounds of durum wheat a year, more than any other buyer in the country—with resultant leverage on price. Huge volume lets Borden save time and money by eliminating the need to shut down production lines to convert to turning out specialty pasta shapes. Instead, three or four plants produce these odd shapes and sizes full time.

Lower costs translate into snowballing market share, which has grown from 6% in 1980 to 31% last year. Borden produces 17 regional brands (such as Prince and Gioia), as well as a national one (Creamette). Catering to regional tastes while enjoying national economies of scale, says Ventres, "gives us the best of both worlds." Borden remains a multiple-business company: Chemicals, dairy products, and snacks are among the strategic areas designated for growth. And despite all the divestitures, the company is bigger than ever. Sales of $6.5 billion last year represent an increase of 30% over 1986, and net income per share was up 21%, to a new high of $3.62.

Another food company, H.J. Heinz, has achieved leadership in vast numbers of products over the years; 54% of the company's sales come from brands with a No. 1 position in world markets. Heinz uses that advantage to augment its commanding position. Heinz ketchup, which Chief Executive Anthony J.F. O'Reilly calls the "flagship product," has 50% of the market, but Heinz has never ceased to diligently apply its research abilities and longstanding connections with growers to increase that share. "It is a mortal sin punishable by instant death at Heinz to say a market is mature," remarks O'Reilly, "and it is also a sin, exculpated only by the chief executive officer, to change the label, change the bottle, or change the recipe for Heinz ketchup." But the company has in fact changed the recipe, after what O'Reilly calls

Pasta champ *Borden has a lot of bargaining power as America's largest buyer of durum wheat. Annual purchases: 800 million pounds.*

an "enormous amount of basic research, market testing, and R&D," switching from sugar to high-fructose corn syrup.

Heinz further sustains its position in ketchup by spending heavily on marketing. As O'Reilly explains, "This is a virtuous cycle of success, where greater marketing expenditures result in additional growth and future margin expansion, which in turn permit increased marketing expenditures." Heinz has successfully applied the same strategy to Weight Watchers foods and Star-Kist tuna and is trying it now on pet foods.

ANDY FREEBERG

With 50% *of the ketchup market, Heinz pushes for more.*

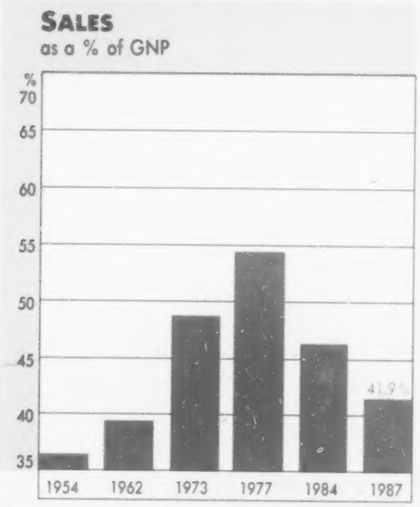
General Electric (No. 6 on this year's list, with $39.3 billion in sales) persuasively demonstrates the power of size in all facets of its business. To choose one example, by vast investment and patient support over lean years the company has become the world's foremost seller of jet engines, displacing Pratt & Whitney a couple of years ago. GE's engine sales reached $6.8 billion last year—enough to rank the engine division alone No. 62 on the industrial list. That achievement made possible a quite different one in a distant arena. In a major transaction, GE last year sold its consumer electronics business to Thomson SA of France and acquired Thomson's medical diagnostic imaging business—a move that required French government approval. Frank Doyle, a senior vice president of GE, is convinced that the deal could never have taken place "if GE had not for almost 20 years been a good corporate citizen" in France—as a producer, with a French company, of jet engines.

GE's restructuring under Chief Executive Jack Welch has taken the company into other new pastures, the acquisition of RCA a couple of years ago being the outstanding example. Restructuring has neither narrowed GE's enormous scope nor slimmed its huge earnings and revenues: Both reached all-time highs last year.

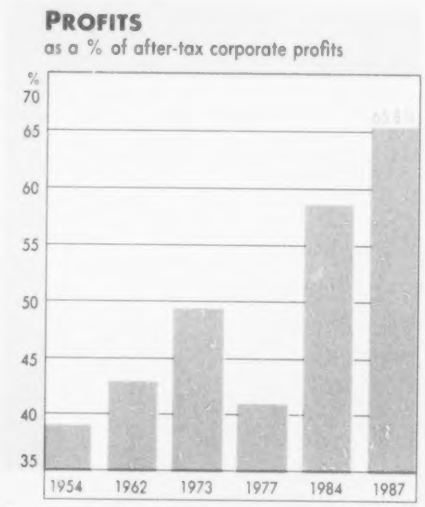
Those who argue that big corporations are fading away have to confront the performance of Boeing, the No. 1 commercial-jet aircraft builder in the world and a fine example of the concentrated, single-purpose corporation that, drawing on its past, seems equipped to endure for eternity. Each new model of aircraft demands enormous startup costs. But using a strategy that eluded onetime commercial-jet maker Lockheed, Boeing designed each model so it could spawn new versions almost endlessly, eliminating the need to go back to square one. For example, the 747 has been through 13 different versions, each needing heavy investment in research and development but none nearly as expensive as it would have been had Boeing designed an entirely new aircraft. When Qantas, Singapore Airlines, and others wanted a jet that could burn less fuel than the old 747, fly over 8,000 miles without refueling, and be handled by two crew members rather than three, Boeing met the specifications by revising rather than remaking. Result: the new 747-400. One study indicates that the break-even point in commercial aircraft manufacture comes after 500 planes, sold over ten years of production. Producing the 747, Boeing deals with 1,500 subcontractors and keeps track of 4.5 million parts. It's hard to see, in that business, how small can be beautiful.

Perhaps the classic example of the conglomerate that has made a successful transition to the new age is Gulf & Western. In

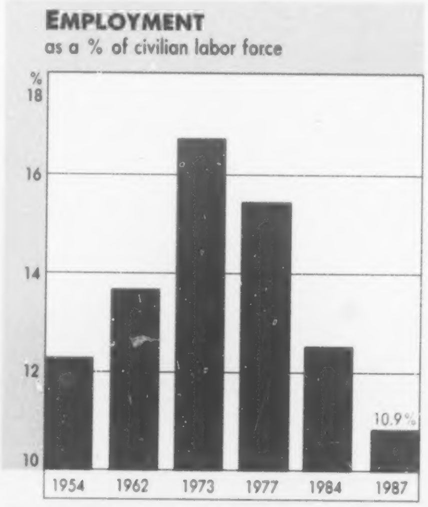
The Shifting Clout of the FORTUNE 500



The 500 companies took an increasing share of gross national product for over 20 years. Now the pattern seems to be reversing.



The group's share of U.S. companies' profits—the nation's bottom line—jumped last year. Restructuring explains a lot of that gain.



The 500 employ a smaller percentage of the labor force than in 1954 because of increased efficiency and the rise of services.

1983, Chief Executive Martin Davis took over a company with operations ranging through an arcane alphabet from auto parts to mattresses to zinc. Davis immediately became one of the first of the big-time divestors, stripping off company after company. But he also maintained a good deal of diversity, rebuilding around three areas—entertainment, financial services, and publishing—where the company already had a presence and where he thought the greatest promise of return lay. (The stripping moved Gulf & Western from the Industrial 500 to the Service 500 two years ago.)

Davis decided what to get rid of and what to keep partly on his judgment about the company's managerial skills. "Start with myself," he says. "I was brought up in the entertainment business, and I understand the financial markets." As for publishing, Davis bolstered Simon & Schuster, a G&W subsidiary, by acquiring the big textbook house Prentice Hall. How did he settle on just three areas? "A lot of it was gut feeling," he explains. "Obviously, most decisions are made by instinct." Just as obviously, Davis's business instincts are excellent: Only an analyst who is also a part-time sadist could ask Davis for better performance. Net earnings at G&W have risen from $158 million, or $1.93 a share, in 1982, the year before Davis took over, to $356 million, or $5.76 a share, last year. Return on shareholders' equity, 7.6% in 1982, reached 17.8% in 1987.

Lots of evidence supports the view that this pattern of gains, the result of what might be called focused mass, will continue for many 500 companies. Stephen Coley, a partner at McKinsey & Co., thinks that the drive to make American companies more competitive in global markets is bound to favor the big corporation, especially in view of the dollar's decline. "Scale will make a tremendous difference," Coley says. For all the criticism being directed at conglomerates, Coley's research shows that of the 25 companies on the FORTUNE 500 list that gave shareholders the highest returns from 1970 to 1987, 15 were in multiple businesses. Size, scope, and management are not about to lose their magic. As a possible side effect of the comeback by big companies, Edward Bowman, professor of corporate management at the Wharton School, believes that the appeal of the 500 as employers is growing among his students and that the attraction of Wall Street is lessening—a trend also noticed at Harvard. (For another view, see the story that follows.)

Amid all this lovely music, a note of caution should be sounded. Restructuring has become something of a management fad. American businessmen have always been susceptible to managerial fashions—witness the conglomeration in the Sixties and Seventies—and now seem insufficiently critical of those who, like orthopedic surgeons, forecast health and happiness after surgery, standing most to gain from performing it. Perhaps overlooked is an odd characteristic of restructuring: Even in the cases of the companies just cited, the upside could also be the downside. Explaining that requires a look backward. The basic problem that overcame the managers of conglomerates, explains Robert Kaplan, professor of accounting at Harvard business school, tracks back to Kaplan's own profession—or, more accurately, to an excess of confidence in his profession. Governing by balance sheet and earnings statements, bearing down hard on quarter-to-quarter performance, the people from headquarters never knew what was happening, one might say, indoors. "The accounting system just wasn't showing what was really going on," Kaplan says. "Top executives relied on the financial signals for more than they are capable of providing." The key missing ingredient, he says, was an assessment of investments needed to meet the long-range goal of each business. Want of that nail brought the house down. Agrees Joseph Bower, a colleague of Kaplan's at Harvard: "What was called scale was simply a conglomeration of units that weren't being managed."

A Harvard professor worries that companies may be tempted to go conglomerate again: "The siren song appears to be irresistible."

Present argument holds that restructured corporations will not tumble into the conglomerate pit because the managers are actually operating the "core businesses," not just watching the books. But no one knows how to define core businesses or how many of them can be added before the company becomes that feared and hated monster, a conglomerate. Martin Davis's "gut feelings" about what his company could manage well have worked out beautifully; so, evidently, have Borden's new pasta line and Heinz's dash into dog food. But the question remains—just which are the core businesses? GE acquires RCA, Eastman Kodak buys Sterling Drug—who's in what core, and how long will the jury be out deciding whether the executives of these companies are operating managers of diversity or have slipped back into the conglomerate mode? Ennius Bergsma, a partner at McKinsey, points out that Dr Pepper went into what seemed like a logical extension of its soft-drink business—a part of the "core"—when it entered bottling. After the wreckage was cleared away, everyone saw that bottling just *appeared* to be an extension: it was really not part of the core at all. So it looks as though the only rule is ex post facto—if it works, it's a core business. Harvard business school professor Michael Porter worries that under the flag of restructuring, the old conglomerate may be sneaking back: "The siren song appears to be irresistible."

OTHER TROUBLES with restructuring may surface. Most worrisome is the debt companies take on in some kinds of restructuring (see page 87). The quick generality is that when servicing debt becomes the major corporate goal and cash flow the leading measure of success, trouble is building. After Borg-Warner's leveraged buyout, engineered by Merrill Lynch, B-W chief James Beré lamented: "Everyone now perceives the company to be very weak because of the highly leveraged balance sheet, and that's new for us. We were a stable company with a strong commitment to our employees. Now they say, 'We believe you,' but I wonder. Management is almost forced to take a shorter view of our work than we did in the past."

From Samuel Heyman, the chief executive of GAF who profited hugely by buying into and selling out of Union Carbide, comes a comment that amounts to endorsement of restructuring but edges over into concern anyway. To avoid takeovers, Heyman says, companies can restructure too hastily. He says that restructuring "must not be viewed as transitory, but rather as a permanent part of a company's response to shifting economic forces." Union Carbide was so eager to fight his takeover threat, Heyman thinks, that it failed to restructure as successfully as it might have.

But the most threatening picture for big corporations appears on the broad social canvas. Big companies have been cutting costs by massive firings, often as part of necessary restructuring (although even free-marketers could be forgiven for petitioning the government to make the use of "lean and mean" a felony). GE, for example, reduced its work force by some 57,000 in 1987, losing 31,000 with the sale of its consumer electronics business to Thomson. E. Patrick McGuire of the Conference Board estimates that about a million middle managers—educated, politically sophisticated people—have lost their jobs in the past three years. In all, McGuire figures, some 40 million people—families, suppliers—have been adversely affected. He predicts that these legions will continue to petition their legislators, and the result will be a new wave of regulation of big business. McGuire points out that 28 states have already passed antitakeover laws. Soon, he says, corporations trying to close plants or acquire companies, possibly to dismember them, will have to file economic impact statements. Other laws will change employer-employee relations in the employee's favor through portable pensions, mandated severance pay (which already exists in Europe, making it cheaper for U.S. companies to fire Americans), and support for the idea that to fire someone violates an implied contract, leaving the employer liable for "emotional damage." McGuire recites the argument: "These are people who committed no sin of sloth or incompetence. They put money into a kind of corporate bank when they chose a career in a big company. Now the bank has been embezzled by the senior people in the company—embezzled to please a paramour called Wall Street." One may have reservations about that reasoning, but it could be music on Capitol Hill.

From Robert Reich, professor of political economy at the John F. Kennedy School of Government at Harvard, comes strong reinforcement of those arguments. Reich says that big companies, such as steelmakers, were once "the anchor of communities like Youngstown, Ohio. Not only did they supply jobs, their executives were corporate statesmen active in community life and philanthropy. Local people looked at them and felt a high degree of loyalty and trust." Now that companies are firing people, leaving businesses, coming and going, and getting out of town, those left behind feel betrayed. Or enraged: In Scotia, California, many local people and environmentalists are furious because Pacific Lumber, a company recently taken over by Maxxam Group, stepped up the cutting of ancient redwoods. (Maxxam financed the $900 million purchase largely with junk bonds.) Bills to ban such cutting have been introduced in the California legislature. "Some companies are forgetting that society determines what kind of responsibilities and privileges they are going to have," says Reich. "Large corporations are losing their moral authority. Big-business bashing is going to come back into style—mark my words."

If that does happen, the business community may have to do some hasty rebuilding in Washington. Ray Hoewing, president of the Public Affairs Council, a Washington advisory group with 400 big companies as members, says, "My overall sense is that there has been a kind of wavering when it comes to representation of big corporations in Washington." Hoewing believes that because the Reagan Administration was regarded as benign, and in an ironic twist because of the pressures of cost reduction, big corporations' presence in Washington shrank during the early Eighties. Now, he thinks, "there seems to be no longer an outflow, but the companies coming in are middle range in size"—so big companies may still be underrepresented. Further, many issues in recent years, such as tax reform, have divided some trade associations.

> "Large corporations are losing their moral authority. Big-business bashing is going to come back into style—mark my words."

If business speaks with a weaker voice in Washington, it may suffer further from the apparently mediocre quality of business leadership on the national scene. No one appears to have replaced executives like Reginald Jones of GE and Irving Shapiro of Du Pont—respected, politically savvy business statesmen who knew their way around the Hill. Further, Stephen Kobrin, professor of management at the Wharton School, thinks the political influence of American multinational corporations has declined in Washington, partly because of the decrease in the number of American executives working in affiliates abroad and the decline in U.S. international power generally. These companies have also lost influence, Kobrin believes, because they are unwilling and to some extent unable to further the objectives of U.S. foreign policy—the shipment of pipeline equipment to the U.S.S.R. against the Reagan Administration's desires being a case in point.

Exacerbating the possibility of a new burst of regulation and the prospect of diminishing clout in Washington, the 500 by some measures have also lost position in the U.S. economy. The 500's revenues equaled 37% of nominal GNP in 1954. The proportion rose as high as 60% in 1980, but last year's drop to 42% brought it down almost to the 1954 level. One reason for the drop is that prices of services have generally risen faster than prices of goods. The share of GNP going to manufacturing as a whole has not followed that pattern of slippage: manufacturing has stayed at around 20% of GNP for 30 years.

THE EMPLOYMENT STORY is similar. The 500 employed 12% of the civilian work force in 1954, and the proportion had reached 17% by 1973. Then the slope turned downward, and last year, in part because of restructuring, the 500 employed only 11% of the work force. This decline in employment share is partly explained by the nationwide shift from manufacturing to services: The percentage of the work force engaged in services has grown greatly since 1948 and now stands at 76%, while manufacturing's portion has declined from 35% in 1948 to 19% last year.

Fewer people working for 500 companies, less share of the nation's economic life coming from the 500—yet all that may not in the long view be bad news. Despite restructuring layoffs, unemployment has continued to decline in the U.S., and the number of employed has continued to grow. That growth suggests that those displaced by restructuring may find new jobs with reasonable speed—perhaps in small companies, now acknowledged as the major creators of jobs. At the same time, firings from restructuring may be expected to taper off, so that at least some of the business-bashing predictions of McGuire and Reich may not come true. With few exceptions businessmen have not been comfortable on the public stage, nor have they performed very well there; the interests of the business community may not suffer if executives spend less time in the spotlight and more in the office. In any case, corporate managers these days are loudly proclaiming that their highest loyalty is owed to their shareholders—an old pitch, but never before made with such force by so many different bosses. Judging from the profit figures, many of these bosses should be feeling pretty good. ■

FORTUNE 500 CEO POLL

AND YOU THOUGHT YOU HAD IT TOUGH

The men who run 200 of America's largest corporations say the job is getting harder. Why? Reasons include global competition and less social clout.

■ *by Carrie Gottlieb*

IS THE GOLDEN AGE of the large corporation ending? Suggestions that it may be come from a surprising source: the men who run 200 of America's biggest companies. In the latest FORTUNE 500 CEO Poll, these corporate chiefs reveal doubts about the future of companies like theirs. Not that they despair; rather, the executives seem to see their companies' outlooks as good but not great, bright but not sparkling.

Twice as many believe that the power of large corporations in America is decreasing as believe it is increasing. While most think the economic rationale for large corporations is intact, a significant minority think it is disappearing. Ask these executives who speaks for big business, and they are most likely to respond that no one does. Most say they consider sales growth a less important measure of performance than their predecessors did—which may prove a benefit for shareholders. Overwhelmingly they assert that running the company is harder for them than it was for the previous CEO.

The survey was conducted from March 16 to 24 by Clark Martire & Bartolomeo, an independent opinion research firm. The 200 respondents came from among the chief executives of the FORTUNE 500 and Service 500 companies.

Of the CEOs interviewed, only 1% thought their jobs were easier than their predecessors'. Most agree that so many external and unforeseen factors bombard CEOs today that long-term planning can quickly give way to crisis management. Thomas Phillips, head of Raytheon, speaks for many: "I constantly have to defend against someone raiding my company. I have to show quarter-to-quarter results. And now we compete against Japanese corporations that have become very formidable. That wasn't the case 20 years ago." Adds John Georges of International Paper: "It's not just a matter of looking at your internal market, plotting the historic growth

Q

Is the power of the large corporation in America increasing or decreasing?

A

Increasing	**16%**
Decreasing	**33%**
Same as always	**49%**
Not sure	**2%**

Q

Is the main economic rationale for the large corporation—economies of scale—disappearing?

A

Yes	**35%**
No	**60%**
Not sure	**5%**

Q

Is sales growth as important an objective to you as it was to your predecessor?

A

As important	**39%**
Not as important	**56%**
Not sure	**5%**

Q

Ten years ago a few CEOs were widely regarded as spokesmen for big business—Irving Shapiro of Du Pont, Reginald Jones of GE, Clifton Garvin of Exxon. Which individuals speak for big business today?

A

No one in particular or not sure	**45%**
Lee Iacocca (Chrysler)	**23%**
Jack Welch (General Electric)	**19%**
Roger Smith (General Motors)	**19%**
James Robinson (American Express)	**13%**
John Akers (IBM)	**12%**
John Reed (Citicorp)	**12%**
Donald Petersen (Ford)	**6%**
Ross Perot	**2%**
George Keller (Chevron)	**2%**
Richard Heckert (Du Pont)	**2%**
T. Boone Pickens	**1%**
Others	**13%**

Q

Compared with your CEO predecessor, is your job easier or harder?

A

Easier	**1%**
Harder	**77%**
Same	**17%**
Not sure	**5%**
Why harder?	
Globalization of business	**25%**
Increased competition	**23%**
Government regulation	**18%**
Increased size of company	**11%**
Public and shareholder pressures	**11%**
Pace of change	**7%**
Mergers and takeovers	**7%**
Technological changes	**6%**

rate, and saying, 'This is what will happen in three years.' Changes have always existed. But now they're more intense and occur in more rapid sequence than in the past."

Against these challenges, the chief executive may have less room to maneuver. Says John Rollwagen, chief of Cray Research, the supercomputer maker: "The CEO used to be the boss. He's not anymore. He's had to relinquish day-to-day control. The job of the CEO is to let people be creative." And it had better work. As Kenneth Lay of Enron, a natural-gas company, says, "It used to be that a CEO had job security until he died or retired. Today CEOs understand that they either perform or get kicked out."

JOHN MADERE

JOHN A. GEORGES
International Paper

"Changes have always existed. But now they're more intense and occur in more rapid sequence than in the past."

Specifically, CEOs say that the two main factors making their jobs tougher are globalization of business and increased competition. Even after seven years of Ronald Reagan, they rate government regulation a strong third. Only 7% say takeovers are making life more difficult, perhaps because these days large companies are as likely to be aggressors as targets.

Most CEOs (60%) believe the principal economic rationale for large corporations—economies of scale—is as important as ever. William Alley of American Brands expresses the majority view: "Since the U.S.'s business competitors in the Far East and on the other side of the Atlantic are getting larger and more forceful in the world market, we must be of comparable size to compete." International Paper's Georges agrees. He notes that his overseas competitors "are not tiny little companies in Scandinavia. They're huge—sometimes far larger than our own."

Yet a significant minority (35%) buy the theory that the whole notion of economies of scale is crumbling. Cray's Rollwagen argues that improved technology allows design and engineering work—important aspects of Cray's business—to be done by small groups of people, making economies of scale more widely available. He believes corporations should place a premium on being "light on their feet" because they need flexibility against foreign competition. Large, lumbering organizations cannot respond as quickly to change as can smaller, entrepreneurial companies.

GEOFFREY BIDDLE

STANLEY C. PACE
General Dynamics

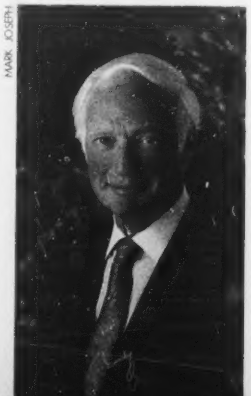
"Companies just don't carry the same impact with the public or with politicians in general."

About half the CEOs polled believe the overall power of large corporations in America is about the same as always. But a third think corporate power is decreasing. Seeing mammoth companies taken over and broken up has changed these executives' view of the world. Seeing such giants as Manville and A.H. Robins pushed nearly into extinction by product liability suits has created a new realization of how fragile even a large corporation is. Seeing a pillar of the FORTUNE 500 like Texaco forced into Chapter 11 by a ruling of the Texas courts seems to have profoundly shaken these CEOs.

They believe their influence is fading in Washington as well. Legislators no longer welcome CEOs with open arms. Even in this generally pro-business era, no one asserts with quite the confidence of the 1950s that anything that's good for business is good for America. Says Stanley Pace of General Dynamics: "Companies just don't carry the same impact with the public or with politicians in general. Thirty or 40 years ago a CEO was held in awe by some politicians. Today, if a CEO sits at home he has no power in Washington. He must play the game and help his Congressman in order to have some influence." The saving grace in this loss of power, says George Kennedy, head of International Minerals & Chemical, is that it discourages complacency and smugness. "If the powerful people in industry find they can't take their bigness for granted," he says, "then that is a good thing."

Big business lacks dominant spokesmen—perhaps partly cause and partly effect of the perceived waning influence. When asked to name the most widely regarded spokesmen for large corporations, CEOs are most likely to name no one. The people they come up with are famous executives who actually speak little on behalf of big business in general and more often for their companies. The first tier is Chrysler's Lee Iacocca, Jack Welch of General Electric, and Roger Smith of General Motors. Further down on the roster are James Robinson of American Express, IBM's John Akers, and Citicorp's John Reed. Why no standout representatives? The CEOs polled offer no persuasive set of reasons—although as Enron's Kenneth Lay says, "Maybe there's less time to be a public spokesman today."

PERHAPS THE MOST encouraging news in the poll is the spreading wisdom among CEOs that sales growth is not what the shareholders are paying them to achieve. Profit growth is. When it comes to measuring corporate performance, 56% of the respondents say sales growth is not as significant to them as it was to their predecessors. Says Phillips of Raytheon: "Net worth and the ability to invest in internal development and research—that's important to corporate strength. Sales alone won't do it." The view of International Minerals & Chemical's Kennedy is also the laudable new gospel among the masters of America's largest corporations: "In the final judgment, I'd rather have it etched on my tombstone that I contributed to shareholder value than have it say I was involved in a $20 billion company." F



MARK JOSEPH

GEORGE D. KENNEDY
Int'l Minerals & Chemical

"If the powerful people in industry find they can't take their bigness for granted, then that is a good thing."

CORPORATE PERFORMANCE

WHAT A DIFFERENCE OWNER-BOSSES MAKE

When they have big stakes, their companies can sizzle. Just look at the fast growers on the fringe of this year's FORTUNE 500, many of them likely to make the list in 1989. ■ *by Peter Nulty*

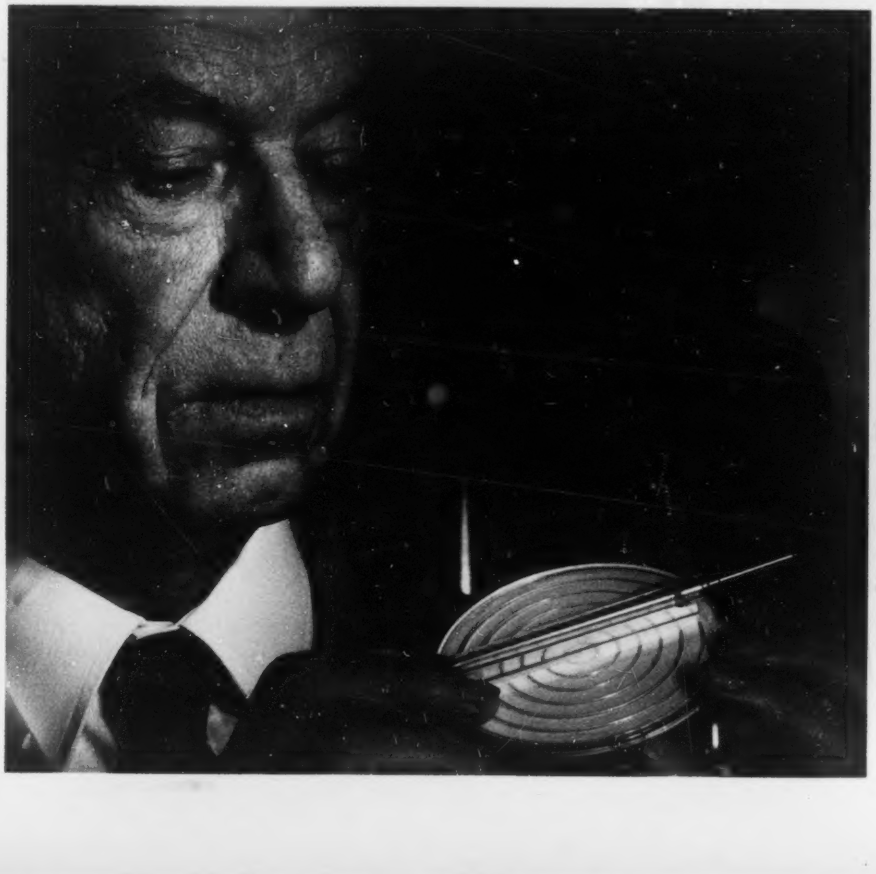
LIKE POSITIONS on a professional baseball team, listings on the FORTUNE 500 are hard to win and tough to hang on to. Aggressive new talent is always pushing up from the farm clubs, itching for the chance to fill the shoes of any top player who falters. A year ago FORTUNE published for the first time a list of 25 of the brightest talents in the 500 farm league, medium-size but fast-growing companies struggling to break into the big time. Nine of those outfits have won places on this year's 500 list, led by Newell Co., which leapfrogged all the way to No. 386.

Welcome, now, the star contenders for the rookie class of '89. They are an incredibly diverse group of enterprises, ranging in age from ten years to 182. Their products include such high-tech gems as filters to screen microbes from the blood, such stunningly unglamorous items as tire retreads, and such homey stuff as bathtubs and chickens.

Each contender has devised its own successful formula for growth. A few are products of corporate restructuring—lackluster divisions spun off by conglomerate parents, only to blossom in their newfound freedom. Some are conglomerate parents in the making, busily acquiring. Most are simply sticking to what they do best, and doing it better than competitors. Every company in the group has recorded average annual sales gains of at least 7% for the past three years, about triple the typical 500 corporation's growth over that span. Three-quarters of the 25 have been growing at double-digit rates.

Hodgepodge as they may appear, most of these outfits share a striking characteristic: Management and members of the board of directors own significant chunks of the stock, giving them a strong voice in running the show and a stake in the outcome. At Pall Corp. of Glen Cove, New York, insiders own 10% of the shares. David Pall, 74, who is chairman, founded the outfit in 1946 to mar-

REPORTER ASSOCIATE *Darienne L. Dennis*



JOHN MADERE (2)

Growth at Pall Corp. *is fired by research on filters like the one above, which purifies fluids used in making semiconductors. Founder David Pall, left, holds a new blood filter that removes white cells, which carry viruses that can cause adverse reactions in transfusions.*

Molex, a family-controlled manufacturer of electrical connectors and switches used in TV sets and automobiles, disproves the canard that family managers doze at the switch.

ket a lightweight filter for aviation fuel that he invented. Now the company produces hundreds of high-tech filters for the chemical, aerospace, and health industries.

Research and development are king at Pall, which spends about 4% of sales on research and an additional 3% on laboratories that work on customers' problems. "We don't really budget for R&D," says Eric Krasnoff, a vice president who runs the biomedical division. "We just spend whatever we have to." The trick, Krasnoff hastens to add, is to focus on unique products: "We don't research things other people have already invented." Pall Corp. filters out a nice profit. Returns on shareholders' equity have averaged about 26% over the past decade. David Pall is no longer active in management, but he spends time at the lab and holds over 100 filtration patents.

While Pall Corp. exploits unique advantages in a special niche, Valspar Corp. blazes a colorful trail in the staid old commodity business of paint. The Minneapolis company was founded in 1806. Sales grew to only $25 million by 1970, just before Valspar merged with another company of the same size: Minnesota Paint. After the merger Angus Wurtele, 53, became chief executive and began buying up other small paint companies at the rate of about one a year. Wurtele owns 12% of the shares; other insiders own 18%.

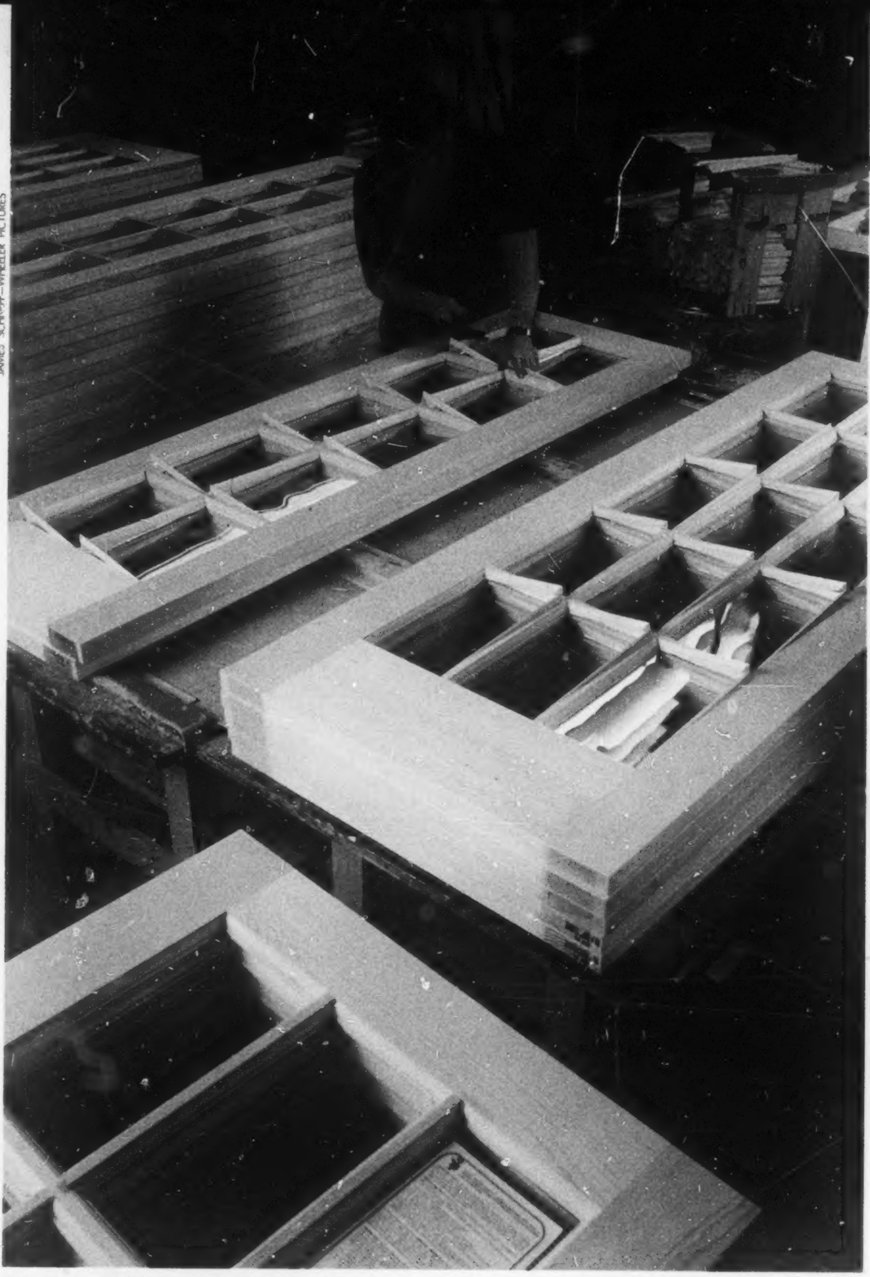
Wurtele's strategy is to stick to paint. He removes any businesses in the acquired companies that don't fit the product line and streamlines what remains. He has organized more than 100 profit centers and has spurred on their managers with a trio of incentives: decision-making autonomy, performance bonuses, and stock ownership. "Just one incentive won't do," he asserts. Valspar is now the fifth-largest company in the industry. Last year sales and earnings grew 18% and 22%, respectively, compared with industry averages of 7% and 2%.

Molex Inc. and J.P. Industries Inc. have also expanded boldly in businesses where competition is strong and no player has a particular advantage. A family-controlled company, Molex disproves that old canard that family managers doze at the switch. Molex makes electrical connectors and switches used in such products as television sets, computers, and automobiles. The Krehbiel family of Lisle, Illinois, owns 49% of the shares, and John Krehbiel Sr., 81, runs the company with his two sons, John Jr. and

GROWING MIDSIZE COMPANIES HEADING TOWARD THE 500

COMPANY	PRINCIPAL PRODUCTS	1987 SALES	1987 NET INCOME	1984-87 AVERAGE ANNUAL SALES GROWTH RATE	
		$ Thousands	$ Thousands	%	Rank
CARTER-WALLACE (New York City)	Pharmaceuticals	451,183	32,326	9	19
VALSPAR (Minneapolis, Minn.)	Chemicals (paint)	448,944	18,052	26	4
VALMONT INDUSTRIES (Valley, Neb.)	Industrial products (lighting poles)	444,884	8,258	21	6
CROSS & TRECKER (Bloomfield Hills, Mich.)	Machine tools	437,042	(24,500)	17.7	7
THOMAS & BETTS (Bridgewater, N.J.)	Electronics	436,463	48,500	10.6	15
HUDSON FOODS (Rogers, Ark.)	Food (poultry)	428,900	12,900	27	3
POPE & TALBOT (Portland, Oreg.)	Forest products (lumber, paper)	426,908	28,129	10.1	16
NCH (Irving, Texas)	Chemicals	426,617	19,588	7.1	23
BANDAG (Muscatine, Iowa)	Rubber products	423,029	62,553	9.9	18
PILGRIM'S PRIDE (Pittsburg, Texas)	Food (poultry)	421,718	10,334	12.4	13
LA-Z-BOY CHAIR (Monroe, Mich.)	Furniture	419,991	24,664	14.1	12
MORGAN PRODUCTS (Oshkosh, Mich.)	Forest products (doors)	417,167	16,194	23	5
FORMICA (Wayne, N.J.)	Plastics (laminates)	413,500	3,205	7.3	22
SPS TECHNOLOGIES (Newtown, Pa.)	Metal products	409,251	15,200	15.4	9
OSHKOSH TRUCKS (Oshkosh, Mich.)	Motor vehicles	403,901	25,811	21	6
ALBANY INTERNATIONAL (Albany, N.Y.)	Textiles	402,203	25,245	14.7	11
LADD FURNITURE (Highpoint, N.C.)	Furniture	386,876	27,634	26	4
MOLEX (Lisle, Ill.)	Electronics (connectors, switches)	386,759	43,416	15.3	10
JP INDUSTRIES (Ann Arbor, Mich.)	Metals, plastics (plumbing, engine parts)	386,516	14,800	80	1
BETZ LABORATORIES (Trevose, Pa.)	Chemicals	385,868	40,634	8.3	21
PALL (Glen Cove, N.Y.)	Industrial equipment (filters)	385,142	48,086	16.7	8
TONKA (Minnetonka, Minn.)	Toys	383,142	(7,500)	40	2
FLORIDA STEEL (Tampa, Fla.)	Metals (steel)	380,996	16,929	10	17
SALEM CARPET MILLS (Winston-Salem, N.C.)	Textiles (carpets)	359,354	5,400	11.4	14
W.A. KRUEGER CO. (Scottsdale, Ariz.)	Printing (books, magazines)	346,362	16,954	8.5	20

JAMES SCHNEPF—WHEELER PICTURES



The fate of Morgan Products *hinges on doors like these at an Oshkosh, Wisconsin, plant.*

Frederick. When Japan became a giant in electronics and auto production in the early Seventies, the Krehbiels quickly opened a Japanese plant and are now well established throughout the Pacific Rim. Roughly 70% of sales are now overseas.

Krehbiel Sr. says success comes from doing a lot of little things well: "We're not the best engineers, we're not financial wizards, and we're not leading innovators. We are generalists who do all that." He adds that owning a controlling block of the stock helps because his family doesn't demand big dividend payments. Thus, the company can plow a lot of its cash flow into further growth. "And we are hell-bent on growth," Krehbiel Sr. says. "Last year our sales were $386 million. But 1988 is our 50th anniversary, and we're determined to break $500 million if they have to carry my desk out and sell it." So much for drowsy family managers.

J.P. Industries of Ann Arbor, Michigan, with sales rocketing at an 80%-a-year rate over the past three years, is the fastest-growing contender in the FORTUNE farm league. Yet again this is no high-tech company with a hot new product that incites customers to a feeding frenzy. J.P. makes plumbing fixtures such as sinks, tubs, and toilets, and tough metal parts for cars, such as camshafts and engine bearings. Not much sex appeal there.

The company was founded in 1979 by John Psarouthakis, 55, a chess buff who believes in plotting ten moves ahead. Psarouthakis is assembling J.P. Industries from acquisitions, 14 so far, that he plans out in exquisite detail. First, he looks for targets that are profitable but underperforming. Then he develops what his vice president of planning, Miran Sarkissian, calls an "action Bible," spelling out how to streamline the operation and who will carry out the plan. He sets a goal of at least 20% growth per year for his acquisitions.

Psarouthakis too wears the cap of owner-manager. He owns 6% of the stock, and other insiders hold 7%. Perhaps that explains his patient but relentless approach. He exhorts employees to do at least one thing better each day, figuring that all improvements, however small, will add up. The company's motto: "Better Makes Us Best."

If the products of J.P. Industries seem mundane, take a look at Bandag Inc., one of several up-and-coming companies that have succeeded through marketing coups. The world's largest maker of rubber treads for recapping worn-out truck and bus tires, Bandag is in a business that makes most others look as glamorous as champagne. And yet there's good money in bad tires.

BANDAG IS TO RETREADING what Big Blue is to computers: It sells top-of-the-line treads, and the machines to bond them to old tires, to franchised retreading shops. Roy Carver founded the enterprise in Muscatine, Iowa, 30 years ago after acquiring the rights to a retreading process from a German inventor. To this day Bandag claims to produce a longer-lasting retread than competitors. Carver's son M.G. is now chairman, and the family owns 30% of the common stock.

Bandag treads have a grip on roughly 50% of the $700-million-a-year domestic retreading market. But the market is growing only about 5% a year. So the company is expanding overseas, where sales, helped by the weakening dollar, have been increasing about 20% annually. Thomas Dvorchak, Bandag's chief financial officer, credits the franchisee system with the big growth: "We can pick the best people because we never sell through nonfranchisees, and we don't charge franchisees a fee up front." Indeed. In the past five years Bandag's return on shareholders' equity has averaged more than 25% annually, and earnings have nearly doubled to $3.90 per share.

George Brophy, 53, chief executive of Morgan Products Ltd., calls his five-year-old company "a classic leveraged buyout." Morgan, a manufacturer of top-quality wooden doors for homes and the leading distributor of Andersen windows, used to be a division of Combustion Engineering. Brophy once was chief operating officer of U.S. Industries Inc., since bought by British-controlled Hanson Industries. He long wanted a ship of his own. He thought the assets of Morgan were underutilized and tried unsuccessfully to buy the company in 1972 and 1980. But in 1983 Combustion Engineering began restructuring, and Brophy got his prize for $2 million in equity and $58 million in debt.

Brophy's first act was to hire three top operating executives from Masonite Corp. "The four of us all had more than 25 years of experience each in specialty building materials," he says, "so we knew how to hit the deck running." In their first year in business, the group paid off a quarter of the debt, partly by speeding the rate of inventory turnover. Pleased with that performance, Brophy instituted an incentive system based in part on controlling those inventories. Top executives also own 7% of the stock.

Brophy next opened the doors to wider marketing. Under Combustion Engineering, Morgan had been selling 60% of its product to home builders. Brophy figured that, with the aging of America's homes, renovation and repair offered a fast-growing area in which to win customers. This market is also less cyclical than the construction business.

> La-Z-Boy, a maker of put-your-feet-up recliners, awoke to modern marketing techniques in the early Eighties and has been anything but sedentary since.

Now more than 50% of Morgan's revenues come from the repair and remodeling market, and sales have nearly tripled, to $417 million, since Brophy bought the company.

La-Z-Boy Chair, a maker of put-your-feet-up-and-snooze recliners, awoke to modern marketing techniques in the early Eighties and has been anything but sedentary since. Founded in 1927 by the father of the present chairman, Charles Knabusch, 48, La-Z-Boy enjoyed steady but unspectacular growth from sales of its dependable but ungraceful chairs until 1982. That was the year Knabusch hired Patrick Norton of Ethan Allen Furniture, known for its marketing prowess, as senior vice president of sales and marketing. Norton, 66, recalls that when he arrived at the La-Z-Boy headquarters in Monroe, Michigan, he found "a company with great plants, a great name, and a great product, but a bit short on marketing direction."

Since then Knabusch and Norton have done two basic things. First, they redesigned their chairs with softer fabrics so they would look less like clunkers in a smoky men's club and more like living room furniture. That helped make the chairs more acceptable to women. Says Norton: "We made them part of the human race, pieces of furniture rather than contraptions."

Second, Knabusch and Norton weeded out retail dealers who wouldn't push the product—in all, 42% of those on the roster in 1980. Unit sales of the recliners have tripled since 1982. At the same time, Knabusch started acquiring manufacturers of more traditional styles of furniture, which now account for about 25% of the company's $420 million in revenues. Insiders own 21% of the stock but, unlike other owner-managers, Knabusch believes that has made no difference in performance. "The key factor to our growth is good marketing."

Taking big risks, through heavy borrowing and dogged expansion in soft markets, has made the difference at Pilgrim's Pride and Florida Steel. Lonnie "Bo" Pilgrim, 59, founder and 80% owner with his family of Pilgrim's Pride, long ago put all his eggs in one basket—the chicken business. Although he has never diversified, he moved adroitly to exploit the nation's growing passion for poultry by moving into the processed chick-

Florida Steel's red-hot performance *rides on such prosaic products as concrete reinforcing wire, being formed into coils at a Jacksonville mill.*

JONATHAN BURNETTE

en products popular at fast-food outlets, where the margins are higher than they are in supermarkets. He has used debt to expand aggressively, a dicey approach in a business with volatile prices and profits. Pilgrim's long-term debt was equal to roughly 47% of total capital at the end of 1987.

"We use debt because I'm used to it," Pilgrim says. "You can expand inventory and capacity a lot more using debt, and the costs of borrowing are diluted by the increase in volume. That works fine as long as you catch the market on the way up." So far, so good. Pilgrim's Pride, located in Pittsburg, Texas, has become the sixth-largest producer of chickens in the country.

One of seven children, whose father died when he was 11, Pilgrim founded his company in 1945 at the age of 17. Last month he nearly negotiated a deal to sell out to Tyson Foods, and Tyson backed out. Now he says he'll remain in the business. If he doesn't change his mind or get caught with too many birds in a big downdraft, Pilgrim could land on the 500 before long.

If chicken processor "Bo" Pilgrim doesn't get caught with too many birds in a downdraft, he could land on the 500 before long.

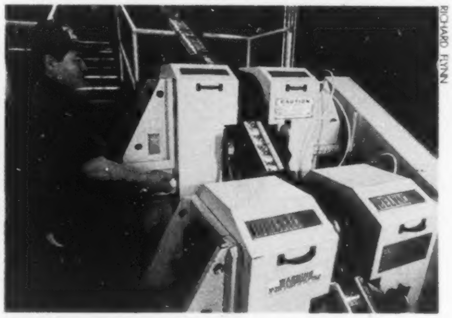
At Florida Steel, where insiders hold 8% of the stock, the motto is: "Think long term." Florida's chairman, Edward Flom, 58, has been patiently piecing together a mini-empire of mini-mills, five so far, that mainly produce concrete reinforcing bars for roads, bridges, and buildings. "We've never had a short focus," says Flom. "We built a mill in the '83 recession and took the losses because we knew we would soon need it."

Orders are now strong in Florida Steel's markets in the Southeast, and the mills are rolling out profits. Flom thinks the robust demand "will last a long time." These days the company is spending heavily to upgrade mills and cut costs, and these expenditures should pay off well into the 1990s. Flom is also looking for acquisitions, but he's not in any hurry. "We are very growth minded," he says. "But it takes a lot of hard work." No doubt that sentiment would produce a chorus of "amens" among those aspiring to be rookies on the FORTUNE 500 next year. ◼

COMPANIES TO WATCH

Belgian Tool & Die Co.

■ From humble beginnings in 1962 as a small tool and die shop, this privately held company now manufactures Belvac canmaking machinery. Belvac neckers, waxers, coaters, and trimmers help turn out some 110 billion seamless aluminum and steel cans annually. In 60 seconds, about the time a college sophomore downs a Bud, these machines can spew out 1,800 containers. Founder Alphonse Stroobants expects that the Lynchburg, Virginia, concern will have revenues of $18 million this year, up 30% from last year.


RICHARD FLYNN

Speeding along a Belvac necker

Attwoods PLC

■ This British-based waste management company is cleaning up in America. Since 1984, Attwoods has acquired three garbage haulers and dozens of mom-and-pop trash collectors in Florida to become the second-biggest waste company in that state. It has also collected another trash transporter that will take it into four more states and a medical waste disposal company. Analysts believe this business won't be trashed by a weak economy. Says Barry Mannis, an analyst at Shearson Lehman Hutton: "People make just as much garbage in a recession." The stock, which is available over the counter in American Depositary Receipts, recently traded at $27 a share, about 14 times 1988 earnings. Last year sales were up 36% to $112 million, and profits rose 54% to $13.3 million.

Brock Hotel Corp.

■ Remember ShowBiz Pizza Place and Chuck E. Cheese, the pizza parlors and video arcades that were the rage with the under-16 set in the early 1980s? The wild din and woeful food gave parents a case of indigestion that quickly turned into severe stomach pains for Brock Hotel Corp., the company that started ShowBiz in 1979 and acquired Chuck E. Cheese in 1985. In 1986 Brock was ailing so badly that creditors accepted roughly 35 cents on the dollar for its debt. CEO Thomas Corcoran calls it a *Star Wars* bankruptcy, meaning that the company was able to reorganize so fast that it avoided Chapter 11 altogether. Out went most of the noisy videogames and down went the decibel level of the music and talking robots. In came a new pizza recipe, fresher salad bars, and table service. Last year sales were up 9% to $192 million and profits were $5.1 million, mostly from an extraordinary gain. The stock trades on the New York exchange at around $7, a price that suggests to Jeffrey Kessler of Cowen & Co. that investors have not yet recognized Brock's improving fortunes.

Animed Inc.

■ The largest company doing laboratory tests for veterinarians hopes to have something to yip about this year—profits. That would be a welcome change for stockholders, whose shares have dropped from a high of $15 in 1985 to about $1.50 recently. Animed bills 80% of the country's vets for clinical services such as tissue and fluid analysis. It also sells medical supplies and computer hardware and software designed for veterinary practices. Last year sales grew 22% to $18.8 million, and revenues should hit $25 million this year. But the Long Island company lost $16 million in fiscal 1986—$3 million from continuing operations and $12.8 million in a one-time write-off of goodwill—dropped another $1.8 million last year, and expects a small loss in the first quarter of 1988. Nonetheless, President Steven Rabinovici predicts that the company will be profitable this year because the revenues are growing and overhead is relatively fixed. Though some analysts are skeptical, Richard Molinsky of D.H. Blair thinks Animed will earn 20 cents a share this year.

—Sarah Smith

COMPETITION

HOW BANKING WILL SHAKE OUT

So-called superregionals have high stock prices, few problem loans, and great growth prospects. What's more, they threaten to take over bigger, better-known institutions. ■ *by Gary Hector*

MARK SELIGER

THOMAS LABRECQUE, PRESIDENT, CHASE

MARKET CAPITALIZATION

1980	1988
$1.6 BILLION	**$2.1** BILLION

Low profit margins overseas and shaky Latin American loans weigh on Chase Manhattan, and it is retrenching. While Labrecque expects to be a "hell of a competitor," he has not yet convinced the stock market.

IF A MAN'S DEMEANOR were enough to determine his world, Thomas Labrecque's universe would be an orderly, disciplined place. Snug in his office in a Wall Street skyscraper, the president of Chase Manhattan Corp. exudes a sense of confidence and calm. He is in many ways a banker of the old school: perfectly tailored, without a hair out of place. But the message Labrecque conveys is at odds with that apparent assurance. Says the man in line to be chief executive of the third-largest U.S. bank in assets: "Whatever a corporate raider could do, I'll bet you that right now, in my drawer, I've got a strategy to do."

The once orderly world of banking has become a jungle. Emerging as the new kings are so-called superregional banks, institutions that operate over more than one state from bases in what used to be considered the hinterlands. Their increasingly desperate quarry: the money center banks of New York, Chicago, and San Francisco, the leaders of the industry as little as ten years ago. The businesses that money center banks dominate—lending to large corporations and serving customers outside the U.S.—have grown so competitive that they offer only meager profits, not nearly enough to shore up balance sheets laden with shaky loans to Latin American countries. The superregionals, by contrast, are richly profitable. Their balance sheets are strong enough to let them write off what little Latin American debt they have, thereby putting pressure on the money center banks to do the same. What's more, the stock market loves the superregionals. Their strong stock prices give them an edge in the industry's haunting new game: hostile takeovers.

Five years ago few dreamed that unfriendly overtures would ever be permitted by staid bank regulators. But in February the Federal Reserve Board let proceed what appears to be the industry's first big hostile takeover attempt, a bid for Irving Bank Corp. by Bank of New York Corp. Says Carl Reichardt, chief executive of Wells Fargo & Co., a very profitable regional bank based in San Francisco: "We're all takeover candidates now." Though the superregionals may not be large enough to swallow Chase yet, they soon will be. That threat is impelling such money center banks as Chase, Chemical, and First Chicago to get out of unprofitable businesses and restructure what remains.

Bankers have been bracing for dramatic

REPORTER ASSOCIATE *Terence P. Paré*

CARL REICHARDT, CEO, WELLS FARGO

MARKET CAPITALIZATION

1980	1988
$652 MILLION	**$2.7** BILLION

Once a money center look-alike, Wells dazzled investors by reconstituting itself as a regional, making some terrific mergers in the process. Part of its secret was ruthless cost cutting in the combined operations.

change since the early 1980s, when the first wave of deregulation broke over the industry. Loosening Federal Reserve Board restrictions was supposed to make life easier by allowing banks to offer high-interest checking accounts and other products to battle the likes of Merrill Lynch and the money market funds. Instead, deregulation seemed to squeeze profits and intensify competition without reducing the oversupply of banks. With some exaggeration, J. Terrence Murray, president of Fleet/Norstar Financial Group in Providence, Rhode Island, a leading superregional, summarizes the changes: "In eight years our money costs have doubled, our bricks and mortar costs have tripled, and our people costs have tripled or more, and at the same time our interest earned has not dramatically increased."

Expect more turbulence in the decade ahead. As in the airline industry, deregulation is likely to bring price wars, with the big beneficiaries being consumers and small businesses, the clients that have been stoking the superregionals' profits. After a shake-out of weak competitors, three large money center banks—Citicorp, J.P. Morgan, and Bankers Trust—will almost certainly remain as global players, competing with other giant banks from Japan, Britain, and elsewhere. Some two dozen other U.S. banks will form a second tier, whose nature will depend on the outcome of today's mergers. "We're just starting," says Reichardt of Wells Fargo. "I would guess that in the next five years you are going to see massive mergers, not necessarily by size, but by numbers—numbers of smaller institutions acquired by middle-size and larger institutions."

In the global context, most of these second-tier banks will end up as niche players, with some very large niches indeed: the entire U.S. as a market, or one region of the country. The stock market is betting that a dozen or more well-run superregionals will take top honors among this group. With hyperefficient operations, balance sheets seemingly constructed by Brinks, and little or no exposure in Latin America, the superregionals can capitalize on the consolidation of the industry. Their challenge is to avoid missteps as they build and manage ever larger companies, at a time when many management consultants argue that most mergers do not work.

BARRY SULLIVAN, CHAIRMAN, FIRST CHICAGO

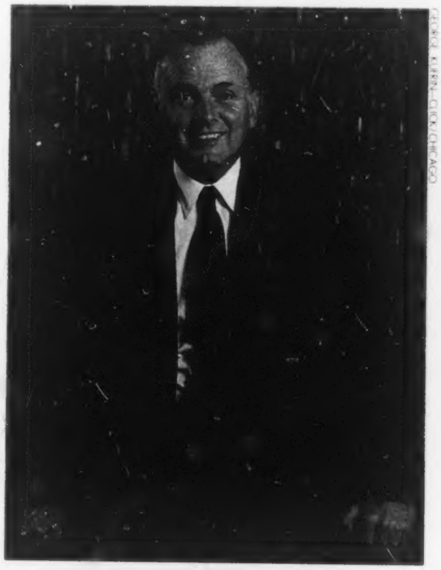
MARKET CAPITALIZATION

1980	1988
$622 MILLION	**$1.3** BILLION

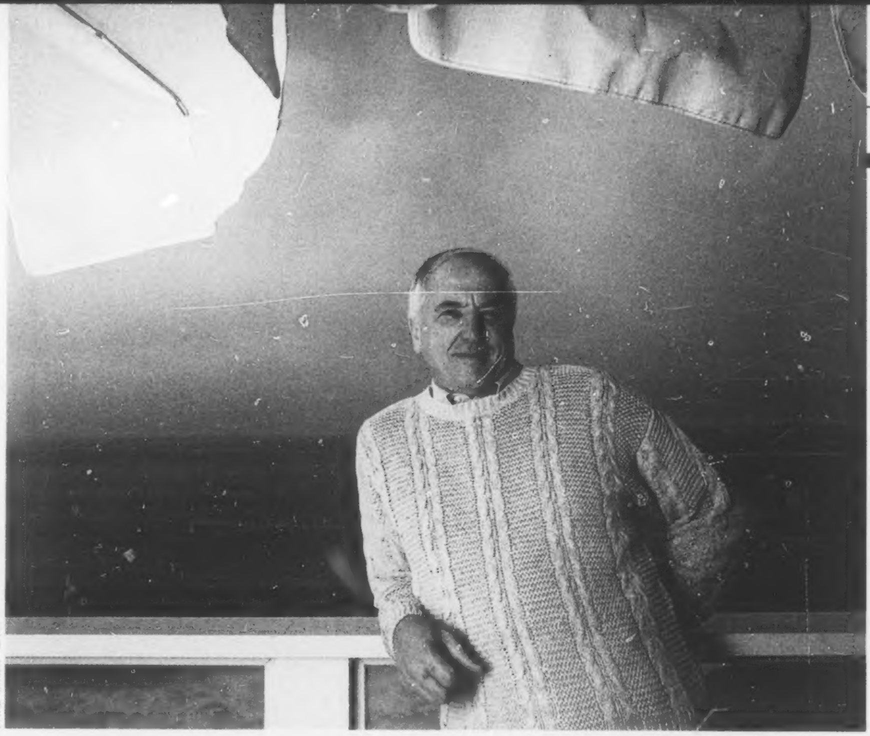
Shedding low-return businesses and building a huge reserve against Latin loans are winning First Chicago support in the stock market. But it has a long way to go before anyone takes it for a superregional.

WALL STREET is downright skeptical that many money center banks will even make the second tier (see table). A combination of heavy Latin American debt, small loan-loss reserves, and diminished capital continues to hobble them. The fun is gone from lending to large corporations both at home and overseas, mainly because such borrowers can find lower interest rates in the commercial paper market. So the money centers are restructuring. But their stock tends to sell at such low multiples that they cannot afford to buy up other institutions. Says an investment banker at a major Wall Street firm: "The money centers are irrelevant."

Yes, agrees James McCormick, president of First Manhattan Consulting Group, "The world has just fallen apart for the poor old money centers." Analysis by McCormick's firm suggests that about 40% of money center bank business can still earn impressive profits: Credit card lending, securities trading, and managing money for the wealthy can return up to 25% on investment. The firm figures that probably 20% of operations earn an average return, say, 14%. But the remaining 40%—all those foreign and large corporate loans—are so unprofitable that they drive down the market value of the company. Says McCormick: "This is a classic case for a



GEORGE KUFRIN—CLICK/CHICAGO



DAVID STRICK—ONYX

JOSEPH PINOLA, CEO, FIRST INTERSTATE BANK

MARKET CAPITALIZATION

1980	1988
$1.4 BILLION	**$1.9** BILLION

Working out the most dramatic restructuring attempted by a major bank is proving difficult. Investors are still troubled by First Interstate's problem loans and its operations in economically hard-hit oil states.

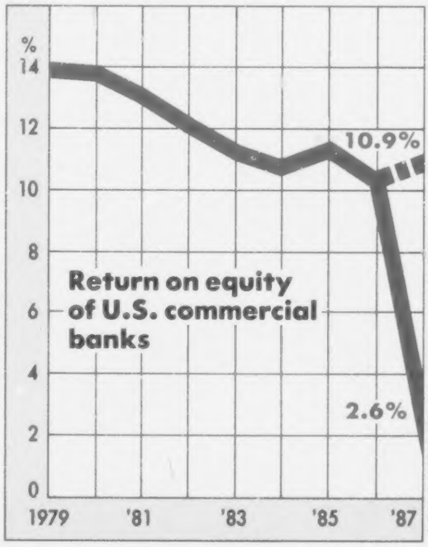
restructuring artist. As a manager, you should wind down or sell the 40% of the business that is dragging down your stock price."

Why aren't the major banks moving more swiftly in this direction? Because while writing off their $86 billion of loans to less developed countries would leave them in more profitable lines of business, it would also make them smaller, more attractive to raiders, and more vulnerable. "If the LDC debt went away tomorrow, I think most money center banks would be forced to restructure fairly aggressively because they would be sitting ducks if they didn't," says McCormick. "The reason they are not under attack now is that LDC debt is a wild card."

Managers of money center banks are in for some soul-searching. Where is the bank actually earning a decent return? What businesses are essential to its future? And how fast can the bank shrink and not be capsized by its LDC troubles? Such banks as Chase, Chemical, First Chicago, and Manufacturers Hanover have begun to address such questions and to take action: They are closing overseas branches, moving out of many low-profit businesses, and strengthening their profitable consumer and small-business lending. The question is whether they can move fast enough to survive.

"If you ask me, 'Are the money center banks going to become irrelevant?' I don't think so," says Chase's Labrecque. "If we look ahead five years, I think we're going to be looking at a different financial services landscape: I think we're going to find that the money center banks—the good ones—have restructured and are a hell of a competitor." Labrecque obviously has a bias. But he has been thinking about these matters for much of the past two years.

Chase's introspection began when its management ordered a study on whether the institution should give up its banking charter. Frustrated by the restrictions that keep banks out of insurance and investment banking, Chase explored the alternative—breaking the company into nonbank pieces that would be allowed into these businesses. As most observers expected, Chase decided not to abandon its charter, but the year-long review had an effect. "We are not shooting from the hip in 15 different directions," Labrecque says. "We're aimed at two places, and they are traditional lines of business."



SOURCE: FIRST MANHATTAN CONSULTING GROUP

Dwindling Returns

Last year's reserves against Latin loans slashed the profitability of U.S. commercial banks. Even without the one-time charges, returns would have been unimpressive (dotted line).

Chase has redefined what it wants to do in corporate and international banking. It has begun to avoid traditional, plain-vanilla lending to concentrate instead on complex credits, loans or financings that require better than usual analysis and judgment. Chase is also investing heavily outside New York in its second basic business, consumer financial services. It has been expanding its discount brokerage business, building a huge credit card operation, and buying savings and loans in Maryland and Ohio and converting them into banks. In overbanked New York City, meanwhile, the bank has closed 50 branches, probably with more to follow.

The restructuring is working, though Chase ran a loss last year after bolstering loan-loss reserves. Retail trade—serving individual consumers—provided a third of total profits last year, before taxes and the creation of the special LDC reserves. Cost cutting has eliminated 7,000 of the company's 49,000 employees. "I want to get this place back to 15% return on equity," Labrecque says. "We don't invest in anything anymore unless it can make it over that hurdle rate."

While Chase's moves have won a measure of respect from analysts on Wall Street, the company's stock price has hardly budged. Owing to the LDC discount, Chase's shares sell at a price that an insider describes as "a few cents above fire-sale liquidation value." One reason: Unlike some competitors, Chase refuses to commit to a long-term retreat from international banking. True, the bank has closed more than 100 overseas branches and pulled out of 13 countries. But it plans to keep offices in 56 others open, going up against giant banks from around the globe.

Though Chase has so much invested overseas it would be hard for it to completely abandon the international business, banks with less at stake find that possibility intriguing. The strategic planner at a money center figures: "If we announced tomorrow that we were selling our international branches, our stock would jump to 160% of book value."

ONE COMPANY that is listening closely to the stock market is First Chicago Corp., a money center bank well on its way to becoming a superregional. Though First Chicago won't get out of international banking entirely, Barry Sullivan, its chief executive, has let investors know he has no stomach for ever again making loans to foreign governments keyed to trade balances between their countries and the U.S. First Chicago participated in Mexico's recent program to swap debt for 20-year bonds backed by U.S. government securities because, Sullivan says, "We think it is important that the shareholder have the perception that long run we want to be out of that kind of game." Sullivan helped drive the point home late last year by raising First Chicago's reserve against loans to troubled Latin American debtors to around 40%, a significantly higher percentage than other large banks had set aside. With the LDC debt discount mostly gone, First Chicago's stock recently traded at just under book value—a respectable price for a big city bank.

The rest of the First Chicago story would delight proponents of restructuring. Sullivan has accepted the gospel of "value-based planning," the idea that firms should eliminate lines of business that don't help the stock price. He argues that his company is doing just that: "When I joined here in 1980, we were over 90% a corporate global bank," he says. "Today we're 70% global corporate and 30% superregional. Over time I'd like to get to a fifty-fifty split."

Shareholders should cheer him on, though it may be a while before they see the benefits. "Our superregional bank makes a 25% return on equity," Sullivan boasts. "If it were standing on its own, that would be the highest return on equity of any superregional in the U.S." What hides its success is the me-

The Mighty Fallen

The table at right orders large commercial banks according to a risk indicator: the sum of problem loans (including those to less developed countries) as a percentage of the total of shareholders' equity and reserves for bad loans. The stock market has not failed to recognize which banks are in trouble or don't have sufficient reserves to cover LDC loan losses.

Banks ranked by risk indicator

	Bank holding company	City	Risk indicator	LDC coverage	Market/ book
1	Corestates Financial	Philadelphia	**10%**	**68%**	**153%**
2	First Union	Charlotte, N.C.	**12%**	**53%**	**138%**
3	Fleet/Norstar	Providence	**12%**	**72%**	**163%**
4	Barnett Banks	Jacksonville, Fla.	**12%**	**N.A.**	**158%**
5	Suntrust	Atlanta	**13%**	**21%**	**187%**
6	Banc One	Columbus, Ohio	**14%**	**67%**	**179%**
7	Sovran Financial	Norfolk, Va.	**15%**	**35%**	**164%**
8	First Wachovia	Winston-Salem, N.C.	**15%**	**36%**	**163%**
9	Bank of New England	Boston	**18%**	**66%**	**135%**
10	NBD	Detroit	**21%**	**50%***	**127%**
11	NCNB	Charlotte, N.C.	**22%**	**35%**	**116%**
12	PNC Financial	Pittsburgh	**30%**	**53%**	**172%**
13	National City	Cleveland	**31%**	**50%**	**144%**
14	First Fidelity	Newark, N.J.	**32%**	**51%**	**118%**
15	Norwest	Minneapolis	**34%**	**52%**	**126%**
16	First Bank System	Minneapolis	**38%**	**46%**	**106%**
17	Bank of New York	New York City	**47%**	**29%**	**91%**
18	Bank of Boston	Boston	**52%**	**55%**	**108%**
19	Security Pacific	Los Angeles	**68%**	**45%**	**113%**
20	Wells Fargo	San Francisco	**72%**	**31%**	**144%**
21	First Interstate	Los Angeles	**74%**	**45%**	**90%**
22	J.P. Morgan	New York City	**81%**	**25%***	**136%**
23	First Chicago	Chicago	**108%**	**37%**	**96%**
24	Bankers Trust	New York City	**109%**	**25%**	**95%**
25	Citicorp	New York City	**121%**	**25%**	**89%**
26	Irving Bank	New York City	**146%**	**28%**	**117%**
27	Chemical	New York City	**155%**	**24%**	**63%**
28	Chase Manhattan	New York City	**164%**	**23%**	**59%**
29	BankAmerica	New York City	**185%**	**20%**	**54%**
30	Manufacturers Hanover	New York City	**195%**	**22%**	**53%**

N.A. Company has no LDC loans. * FORTUNE estimate SOURCE: CATES BANKCOMPARE I REPORTS

The biggest banks of 1980

Market capitalization 12/31/80 in billions of dollars

1	BankAmerica	**$4.5**
2	Citicorp	**$3.0**
3	J.P. Morgan	**$2.0**
4	Chase Manhattan	**$1.6**
5	First Interstate	**$1.4**
6	Continental Illinois	**$1.2**
7	Manufacturers Hanover	**$1.1**
8	Texas Commerce	**$1.0**
9	Bankers Trust	**$1.0**
10	Security Pacific	**$1.0**

The biggest banks of 1988

Market capitalization 3/10/88 in billions of dollars

1	Citicorp	**$6.2**
2	J.P. Morgan	**$6.2**
3	PNC Financial	**$3.5**
4	Security Pacific	**$3.3**
5	Suntrust Banks	**$2.8**
6	Wells Fargo	**$2.7**
7	Banc One	**$2.7**
8	Bankers Trust	**$2.6**
9	Fleet/Norstar	**$2.4**
10	First Union	**$2.3**

diocre profitability of the rest of the bank, particularly its foreign operations. Even before last year's reserve for LDC loans, Sullivan says, First Chicago's other operations earned a mere 6% on equity.

Like Chase, First Chicago has been pulling out of marginally profitable businesses, pruning staff, and closing offices. In the third quarter of 1987, the bank shuttered many of its offices in Europe, taking a $38 million charge against earnings to cover the costs. More cuts may be in store this year because even after slashing costs, Sullivan says, "we're not sure the international side of the business can make 15% returns over time."

The company's growth is now coming in consumer and small-business lending, where profits are good, and in specialized U.S. corporate lending, such as financing leveraged buyouts, where Sullivan expects to make an 18% return on equity this year. If the stock market rewards First Chicago's efforts, driving up its share price relative to other Midwest banks, Sullivan will be able to join the rush to merge. He has his eye on large banks in adjoining states with strong business loan portfolios.

JOHN ABBOTT

THOMAS O'BRIEN, CEO, PNC FINANCIAL

MARKET CAPITALIZATION

1980	1988
$328 MILLION	**$3.6** BILLION

Buying good banks catapulted PNC from also-ran in Pittsburgh to top-25 standing in just five years. While further acquisitions may be too expensive to make now, O'Brien plans to keep his bank growing.

PERHAPS THE BOLDEST reorganization yet announced by a major bank came last September when First Interstate Bancorp of Los Angeles decided to stop trying to straddle the fence between being a money center and a superregional. With banks in 18 states, First Interstate already qualified as a superregional. To be less a money center bank, it closed foreign offices and got out of the business of lending to large corporate customers outside its regional base. It also focused its attention on five Western states, where the emphasis is on retail and small-business lending. The company spun off $2.8 billion of assets—including its LDC debt—into a separate subsidiary, where the loans are to be sold or worked out. Says Joseph Pinola, First Interstate's chief executive: "Now we're 75% superregional and 25% money center."

So far, though, the stock market has not awarded First Interstate any accolades. The market crashed two weeks after Pinola announced his plans to restructure, making it more difficult for him to sell assets. Some of his banks do business in such oil states as Texas, Oklahoma, and Colorado, whose economies are still suffering. First Interstate also has a nagging portfolio of problem real estate loans. As a result, investors continue to treat it like a troubled money center bank: Its stock sells at a steep discount to most superregionals.

What permitted First Interstate to attempt such an aggressive restructuring was its relatively strong capital position. Pinola took dramatic write-offs, but still ended up with equity capital equal to just under 4% of assets. Weaker banks cannot afford such steps if they hope to meet the capital guidelines proposed by bank regulators. Under those strictures, by 1992 banks will need minimum equity capital of about 4% of assets. Meeting that requirement will force many large banks, including perhaps all the money centers except J.P. Morgan and Bankers Trust, to sell stock to the public, perhaps at prices that will dilute the holdings of existing shareholders. As the table shows, the well-run superregionals have ample capital, few problem loans, and large reserves against losses—what analyst J. Richard Fredericks at Montgomery Securities calls "fortress balance sheets."

The only immediate glimmer of hope for hard-pressed money center banks is that the men who run the superregionals are a cautious, penny-pinching bunch. The pace of mergers is less rapid than many in the industry expected, in part, suggests Pinola, because superregionals are running out of large acquisition targets free of the money center taint. "The superregionals got to be among the banks with the top market capitalization because they didn't have any international loans and they didn't have any low-yielding, blockbuster, high-risk commercial credits that have gone broke," he says. "If they were smart enough to do that, why would they get in our business through acquisition?"

Not surprisingly, executives at many superregionals agree with Pinola. One of the largest and most admired of the superregional breed is PNC Financial Corp. of Pittsburgh, by market value the third-largest banking company in the U.S., just behind Citicorp and J.P. Morgan. If the name sounds unfamiliar, don't be surprised. A decade ago PNC, then called Pittsburgh National, was a well-managed bank of middling size that specialized in lending to small businesses.

Since 1983, PNC has acquired five very profitable banks in Pennsylvania and nearby states. PNC's climb set it among the nation's 25 largest banking companies in assets. It is still growing. Whether PNC buys another bank or not, its chief executive, Thomas O'Brien, expects the company's assets to grow about 10% a year for the foreseeable future, down from the 15% a year in the early 1980s, but still fast enough to keep gaining on the money centers.

continued

ANDY FREEBERG

JOHN McCOY, CHAIRMAN, BANC ONE

MARKET CAPITALIZATION

1980	1988
$407 MILLION	**$3.2** BILLION

Investors learned to love Rust Belt banks when McCoy showed he could transform mediocre banks into world beaters. A portrait of his father, formerly chief executive of the bank, watches over his efforts.

For all of PNC's go-go growth, O'Brien sounds downright conservative: "People ask, 'What are you going to do next?' Well, we're going to manage what we have." He hopes to build or buy banks in neighboring New Jersey and Maryland but thinks that prices are too high for now. "They may never come down enough for us to go in there," he says. "We're not going to force our way in at massive costs to shareholders."

Superregionals have not been the only banks to successfully consolidate their positions through combination. Over the past 2½ years, Carl Reichardt of Wells Fargo has completed three strikingly successful mergers, all within the confines of California. The largest of deals, the acquisition of Crocker National Corp. from Midland Banks of London, was the best. Not only did the purchase nearly double Wells Fargo's size, it came with no bad international debt—Midland swallowed that—and at a rock-bottom price, just about book value.

The merger has worked superbly, thanks largely to Reichardt's ruthless elimination of employees and branches. He closed most of Crocker's international offices, just as he had closed Wells Fargo's overseas offices a few years earlier. After streamlining the California branch system of the two banks, he ended up with an average of more than $100 million in deposits per branch—more than any other bank in the state. Sounding more like a retailer than a banker, Reichardt brags that his "sales per square foot" make him one of the most efficient operators in the business.

MOST BANKERS expect more big mergers along the line of the combination of Crocker and Wells, especially now that people like Reichardt have proved how economical they can be. "You get more bang for the buck where you have overlapping systems," he says. "Our view is that the action is going to be in the constant acquisition of these inefficient operators and a lowering of their expense ratios to efficient levels. It doesn't take a space scientist to do that."

Not all bankers—even good ones—have the stomach for such deals. Says O'Brien of PNC: "I personally don't like the idea of taking a bank and putting 2,000 people out in the street in the name of efficiency." But what fuels much of the bank merger binge is a spreading perception that you can both grow and make money by rationalizing operations.

The best-run superregionals share one overriding characteristic—an ability to run low-cost, efficient banking operations. Banc One, for example, has made a bundle turning small, not particularly well-managed Midwest banks into highly profitable institutions. The Columbus, Ohio, company buys a bank, streamlines its data processing, sheds unprofitable customers, puts in strong financial controls, and shortly has an institution that is earning a nifty 1% or more on assets. The holding company last year produced a return on equity of around 11%, but this reflected a big addition to its reserve against loans to Latin America. Without the reserve, Banc One would have posted a return on equity of nearly 18%.

Few superregionals are in a rush to build a nationwide bank, and Banc One's slow but steady expansion plan is typical. "We're a little bit like McDonald's was 30 years or so ago," says John B. McCoy, Banc One's chairman. "It doesn't make sense to open a stand 5,000 miles away. We'll own about 62 banks by the end of the year; there are 14,000 left."

Of late, the pace of large interstate mergers has slowed. For one thing, the stock market crash made deals for stock less appealing. Another reason, say bankers, is that mergers of companies of nearly equal size across state boundaries are beginning to test the managerial skills of superregional executives. First Union Corp., a North Carolina bank on the fast track, saw its results flag after a string of acquisitions. So did First Wachovia Corp., another North Carolina bank, following the combination of Wachovia Corp. and First National Corp. Many of these banks now talk cautiously about the future. John Medlin, chief executive at First Wachovia, says he'll probably spend the next ten years gradually expanding through the rest of the Southeast.

Ten years is long enough for the balance of power in the industry to shift once more. Some bankers in New York predict tough times ahead for the superregionals. The critics' strongest argument is that the profitability of the superregionals' best lines of business—lending to consumers and medium-size businesses—is likely to decline. With so many money center banks getting into the fray, price wars are likely. Credit card interest rates have already softened. But even if the superregionals do run into trouble, it seems unlikely that the money center banks will regain their dominant position. While the big money center banks restructure to cope with one wave of deregulation, Washington is preparing the next. This time Congress looks ready to tear down the barriers between commercial and investment banking, a step likely to fuel a new round of consolidations and price wars. Welcome to banking's brave new world. ■

POLITICS & POLICY

REDRAWING THE LINE ON DEFENSE

Are U.S. forces stretched too thin in trying to protect so much of the world? Probably not, but it is time for America's allies to pick up more of the burden.

■ *by Lee Smith*

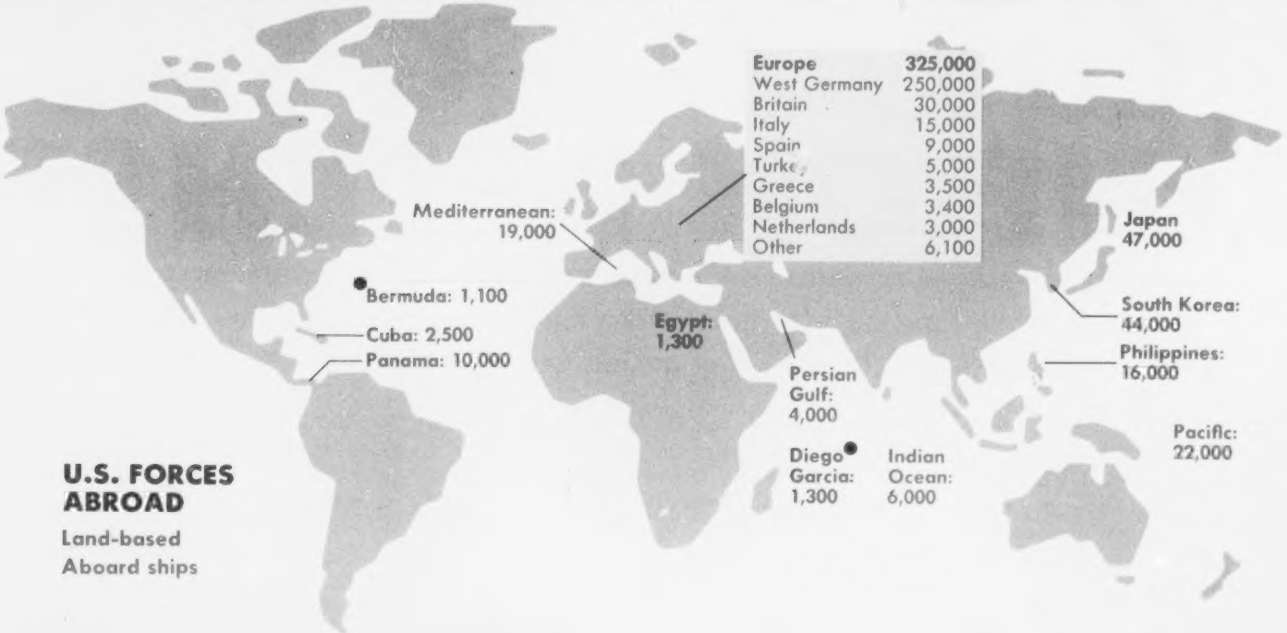
THE ANGER-ANXIETY index is surging again, as it has periodically for as long as the U.S. has stationed troops overseas. Congressional critics of U.S. defense policy complain impatiently, sometimes bitterly, that after 40 years it is time for Europe to do more to defend itself. Even moderates in Congress are in a mood to cut defense spending, no matter who is in the White House next year. The Pentagon will have to find the money somewhere. So this is a good time to take a hard look at America's world-girdling forces. Should the U.S. bring some of the boys and girls home?

The question has to be considered in light of another: What are we defending against? The basic U.S. commitment overseas is unchanged. It is to contain the power of the Soviet Union and its allies, to keep shipping lanes open, and to protect oil and gas fields in the Middle East. The U.S. keeps 500,000 troops abroad, about a quarter of its total force, and more than the British empire's at its zenith. It has pledged to defend 47 nations, from the tiny island states of Micronesia to mighty Japan and West Germany. A 15-ship task force patrols the Persian Gulf in the crossfire of the Iran-Iraq war. In March, 3,200 U.S. soldiers dropped into Honduras to face down Nicaragua.

continued

Pledged to defend 47 nations, *the U.S. watches over the Pacific from Clark air base in the Philippines, where this grimacing F-4 waits for action.*

PETER CHARLESWORTH—CONTACT


Europe 325,000
West Germany 250,000
Britain 30,000
Italy 15,000
Spain 9,000
Turkey 5,000
Greece 3,500
Belgium 3,400
Netherlands 3,000
Other 6,100
Mediterranean: 19,000
Bermuda: 1,100
Cuba: 2,500
Panama: 10,000
Egypt: 1,300
Persian Gulf: 4,000
Diego Garcia: 1,300
Indian Ocean: 6,000
Japan 47,000
South Korea: 44,000
Philippines: 16,000
Pacific: 22,000
U.S. FORCES ABROAD
Land-based
Aboard ships

A Worldwide Reach for U.S. Forces

The 500,000 U.S. troops abroad fall into three categories: Western Europe, the Pacific, and everywhere else. The biggest—and costliest—concentration is in Western Europe, which takes 43% of the total defense budget. The 325,000 troops in Europe are matched by nearly that many wives and children, who must be educated and entertained. Defending the Pacific takes just 14% of the budget, partly because troops rotate into South Korea for six months, leaving their families behind. The everywhere-else category includes Latin America and the Middle East, but costs relatively little.

But if the mission has remained the same, the economics have not. Policymakers and scholars with a long forward—and backward—view worry increasingly that America's military reach is exceeding its economic grasp, a concern brilliantly discussed in Yale professor Paul Kennedy's cerebral best-seller, *The Rise and Fall of the Great Powers.*

For the past 500 years, Kennedy argues, when military ambition tried to hold on after economic power dwindled, collapse followed. As one example, he points to the Hapsburgs of the Holy Roman Empire, who also ruled Spain, the Netherlands, and half of Italy in the 16th century. To protect their interests, they employed a large army, borrowed heavily to support it, and ran a big trade deficit. By the 18th century the Hapsburgs were in irreversible decline.

The contemporary parallels are obvious. Since the early 1950s the U.S. share of total world output has shrunk from 45% to 30%, and the country is straining under those notorious budget and trade deficits, expected to amount to $150 billion and $155 billion, respectively, this year. At the same time, America's allies have grown richer while still contributing much less than the U.S. to the common defense. Harvard political scientist Samuel P. Huntington recently toted up some figures that put it succinctly: The U.S. accounted for 47% of the total economic product of NATO nations plus Japan in 1985, yet paid 70% of the defense bill; with less than a third of the allied population, the U.S. mustered 40% of armed service personnel.

BRAD MARKEL

Rookie Defense Secretary *Frank Carlucci struggles with Congress.*

Still, history provides warnings, not templates for the future. There are important differences between the U.S. and the Hapsburgs, who had to oppose the rising British, Dutch, and French. By contrast, the U.S.'s chief rival, the Soviet Union, is a far more desperate victim than the U.S. of what Kennedy calls "imperial overstretch."

Prospects for persuading the Soviets to cut back their troops in Europe are better than they have been in a long time. In the early 1980s, after Russian forces surged into Afghanistan, Pentagon planners worried that they could easily push on to the oil fields of Iran. Now the chances of those soldiers moving anywhere but back home are remote. Says Jeffrey Record, a scholar at the Hudson Institute: "If the Soviets couldn't control 12 million Af-

ARNOLD MEISNER—DEFENSE IMAGE

HARRY BENSON

RUDI MEISEL—VISUM

From Berlin *(above), where American soldiers patrol the wall, to the villages of the Netherlands (far left), U.S. military power is a commanding presence in Europe. So are American kids (left), who go along in such numbers that bases look like suburbia U.S.A.*

ghans, think of the fun they'd have with 45 million Iranians."

For a while at least, the Soviets seem on the defensive, turned inward to tend a failing economy and less able to stir up synchronized trouble. That has appreciably lowered the worldwide weight of U.S. commitments. It also creates a great opportunity for the next President. Just as Ronald Reagan set a goal of reducing strategic nuclear weapons by 50%, the man elected next November would be wise to pledge to reduce America's conventional forces in Europe by about that amount *if* the Soviets make a comparable reduction.

The presidential candidates, however, are taking the opposite approach. In answer to questions from FORTUNE, Vice President George Bush and Massachusetts Governor Michael Dukakis both stressed the importance of strengthening conventional forces in Europe, especially after the treaty banning short- and intermediate-range nuclear weapons. Tennessee Senator Albert Gore Jr., who is a defense expert, said NATO allies would have to bear more of the burden for Europe's defense, but he didn't suggest a cutback in U.S. forces.

REPORTER ASSOCIATE *Julianne Slovak*

The notion that NATO will have to add a lot of nonnuclear muscle as a result of the INF agreement is based on the widely held assumption that the Warsaw Pact has overwhelming superiority in conventional forces. John Steinbruner, director of foreign policy studies at the Brookings Institution, argues that even though the Warsaw Pact outnumbers NATO by about 1.6 to 1, that still amounts to rough parity if you assume that Warsaw Pact forces would be on the attack. By most estimates, an attacker needs at least a 2 to 1 margin. Says Steinbruner: "They don't have enough troops to sustain an attack and hold territory."

THE SOVIETS and their allies do have more tanks, though many are old. The NATO air force is also smaller than the Warsaw Pact's, but it is a decade ahead in technology. U.S. planes flown by Israelis have vaporized Syrian-piloted MiGs. On top of that, the Soviets undoubtedly puzzle over the reliability of the Poles and other allies.

The problem is not that the U.S. has made too many promises, but that it backs them up too lavishly with too many troops, supported by stupendously expensive planes and ships. Defense Secretary Frank Carlucci has started to whittle away. To bring the 1989 defense budget down $33 billion, to $300 billion, he has asked Congress to get rid of three of the Air Force's 38 tactical wings. It would then need 220 fewer planes and 23,000 fewer men and women. The Army would discharge 8,600 soldiers.

The Navy would have to retire 16 frigates and probably a couple of old aircraft carriers, which would delay the service's goal of a 600-ship Navy built around a core of 15 carriers. Navy Secretary James Webb threw a temper tantrum and quit. Carlucci shrugged it off. Says he: "It's no good having 600 ships if you can't afford to man them."

More to the point, the 568 ships, including 14 carriers, are probably enough to protect sea lanes and project power. The Soviet navy, with 1,070 ships, is hardly an insignificant opponent. But numbers alone can be misleading. Many of the Soviet ships are small, and the total includes coastal patrol boats. The U.S. does not count its Coast Guard, which is part of the Department of Transportation. With 66 ships, the Coast

Guard ranks as the world's fifth-largest navy.

Even after Carlucci's efforts, the next Administration will be under pressure to reduce forces even more. Carlucci assumes the Pentagon will be allowed real spending growth of 2% a year for the next five years. More likely, to reduce the budget deficit, Congress will keep defense spending flat.

Western Europe, where two-thirds of all U.S. forces abroad are stationed, consumes the largest share of dollars by far. The Pentagon doesn't break out spending by region, so the amount can only be estimated. Some congressional advocates of troop withdrawals from Europe claim that Europe eats up as much as 60% of the total defense budget, or $180 billion. A less politically charged figure comes from Earl C. Ravenal, a Georgetown University professor who was a Pentagon official during the Vietnam war. He calculates that the U.S. spends $133 billion a year on NATO, or about 43% of the budget.

At the DMZ *the armistice is still tense.*

KIM NEWTON—WOODFIN CAMP

By focusing only on comparative spending, Americans overrate the sacrifice they make for defense and underrate Europe's contribution. In the U.S., 6.7% of GNP goes for defense, vs. 4.2% in France and 3.4% in West Germany. But France and West Germany also have a military draft. Young Europeans pay in time as young Americans do not. Moreover, protecting Europe is not a selfless act by the U.S. Europeans like to point out, with a touch of gallows humor, that they provide the battlefield for what amounts to the American front line against the Soviet Union.

Still, America's commitment to Europe in hardware and personnel is huge. Half the Army's troops, about 400,000 soldiers, are trained and equipped for one basic mission: to fight on the plains of central Europe in tanks or armored vehicles. Some 200,000 troops are actually in Europe, with the rest stationed around the U.S. The tanks and guns for the U.S. troops are stashed in warehouses in West Germany and other NATO countries. The plan is that in war, the troops would be flown to Europe in commandeered commercial 747s.

THE AIR FORCE has 900 planes in Europe, about a third of NATO's total air power. The bases are in West Germany, Britain, and Spain, though the last mentioned will be closed in 1991 at the insistence of the Spanish government. In industry, higher technology often means fewer workers. In the military it seems to

Welcome to Korea: *A special forces paratrooper from Fort Lewis, Washington, who just dropped in, gets a taste of home from a Korean woman.*

SGT. TONY LAMBERT—U.S. AIR FORCE

TV in Korea: *Nothing is spared to make the troops feel as if they're back home watching the tube.*

be the other way around. The more sophisticated the equipment, the more people needed to keep it running. At the Torrejon base outside Madrid, for instance, 2,800 people, excluding civilian employees, maintain and fly just 72 F16s. The military payroll alone is close to $100 million a year, or $1.4 million per plane. Together, the Atlantic and Mediterranean fleets number more than 300 ships, including eight aircraft carriers, with up to 90 planes each. And like the Air Force, the Navy is both capital- and labor-intensive. It takes a crew of 6,000 to operate a $3 billion carrier.

Accompanying the troops in Europe are more than 300,000 spouses and children. The area around U.S. bases in West Germany is a sort of armed suburbia, complete with U.S.-provided garden apartments off base, car dealers from whom the troops can buy without paying local taxes, movie theaters, television stations, schools, and country clubs.

Evacuating the civilians during a crisis would undoubtedly jam the transportation system. The plan is that 747s would fly round trips, dependents out and soldiers in, though such a vast operation would hardly go smoothly. Probably families should stay home, with troops rotated in and out of Europe on relatively short stints, as is done in South Korea. Not only would that be a more realistic approach to the logistics problem should war come in Europe, but it would save considerable money in infrastructure and moving costs.

David Calleo, director of European studies at the Johns Hopkins School of Advanced International Studies, would phase out the 200,000 backup troops in the U.S. He doubts they could get to the fight in time, as does Georgia Senator Sam Nunn, chairman of the Armed Services Committee. Says Nunn: "To pretend that we are going to be able to transport large tank divisions in an emergency is ridiculous." For that reason, Calleo notes, NATO doesn't count them in its planning. The Congressional Budget Office estimates that for every 100,000 troops discharged, the Army would save—after some mustering-out costs—$5 billion a year in pay, training, housing, and such. So the Calleo plan saves $10 billion annually.

BUT REDUCING TROOPS without a comparable move by the Soviet Union makes no sense. An alternate plan suggested by Lawrence Korb, assistant secretary of defense for manpower from 1981 to 1985, would save the same amount of money and could be used as leverage to get the Soviets to cut back as well. The U.S. would drop 100,000 soldiers in Europe and 100,000 in the U.S. In exchange, the Soviets would have to agree to reduce their ground forces in Europe by half as well, and remove half their 50,000 tanks. The allies would have to agree, of course. And the Soviets would undoubtedly demand that the U.S. remove some of its fearsome planes. Carlucci is doing that anyway. He is disbanding the air wing in Spain, even though Italy offered a base for it there.

Pulling back a little, the U.S. would not only put its budget in better order, but also allow a more natural European leadership to evolve. Former German Chancellor Helmut Schmidt, for one, worries that the European

High school in Frankfurt: *For these children of GIs, science class has an American style.*

dependency on the U.S. has corrupted both parties. The obvious bulwark in Europe is the West German army of 450,000, with another 1.5 million in the reserves, and the French army of 296,000. Although France declines to put its troops under NATO command, France and West Germany are beginning to work together. They have even created a joint brigade.

The Pacific is a much smaller drain on U.S. resources than Europe. There are 130,000 U.S. troops in Asia, backed up by 25,000 at Fort Lewis, Washington, and 60,000 in Hawaii, plus 240 ships, including five aircraft carriers, and 320 land-based planes. Georgetown's professor Ravenal reckons the cost of guarding the Pacific at $42 billion a year, about 14% of the total defense budget.

Sunset ends the day *for these Marines in the Philippines. But it's morning in Europe.*

U.S. forces should stay there, at least for now. More trade now crosses the Pacific than the Atlantic, so the region is more important than ever, and still unstable. North Korea's leader, Kim Il Sung, continues to be murderously hostile to the South. A few years ago his agents detonated a bomb beneath a reviewing stand in Rangoon where South Korea's then President Chun Doo Hwan was being welcomed by Burmese officials. Chun survived, but four members of his cabinet were killed. More recently North Korean agents blew up a Korean Airlines plane in flight, killing 115. If the U.S. were to pull out its 31,000 soldiers and 135 tactical fighters from South Korea, Kim's armies might well make a dash for Seoul, the country's capital for 600 years.

When President Carter tried to withdraw the troops a dozen years ago, he alarmed not only the South Koreans but also the Japanese, who sensed that power in the Pacific was about to tip toward the Communists. If the U.S. were to leave Korea, the Japanese might be tempted to strike a deal with the Soviet Union or the Chinese.

The only major change the U.S. should urge in Asia is that the Japanese contribute more of the cost of their own defense. Japan's postwar constitution renounces war as an instrument of foreign policy, but it places no restriction on what the country may spend on defense. Since the 1950s, governments have traditionally limited defense appropriations to about 1% of GNP. Last year that came to $24 billion, a little more than half what the U.S. spends in the region.

No one wants Japan to become a military power. The Chinese, Koreans, Filipinos, and other neighbors with vivid memories of World War II would be in an uproar if the Japanese were to mobilize a sizable land force. Nor should the U.S. want a bigger Japanese air force, which consists mostly of F-4s and F-15s, made in Japan under license from McDonnell Douglas. The Japanese have already toyed with the idea of producing their own fighters, then backed off under U.S. pressure. If they were asked to expand the force substantially, they probably would insist on building planes, creating a new competitor for U.S. aerospace companies. The Japanese navy could add a few more sub-hunting planes and patrol boats. But since the U.S. Navy easily outguns the Soviets in that part of the world, there is no pressing need for the Japanese to supply more naval firepower.

So what should Japan do? Pay more, simply put. At the very least, Tokyo should take over the whole payroll for the tens of thousands of Japanese civilians who work at the 32 U.S. bases in Japan, not just a portion as they do now. The cost has rocketed with the rise of the yen to about $7.1 billion annually, with the Japanese providing about $2.5 billion. Senator John Glenn thinks the Japanese should also meet part of the cruising expenses of the Seventh Fleet.

FOR GOOD REASON the U.S. does not want to lower its overhead in the Pacific by removing its wing of 78 planes from Clark Air Force Base and especially not by closing the Subic Bay naval base, both in the Philippines. The government of President Corazon Aquino is talking about expelling the U.S. if it insists on berthing ships that carry nuclear weapons. The U.S. declined to make concessions to New Zealand on that issue and as a result no longer has a defense treaty with Wellington, a rare instance in which the U.S. has discarded a responsibility.

Presumably Washington would not yield to Manila either. Those bases are part of a network that stretches from San Diego through Pearl Harbor, Guam, Yokosuka in Japan, and out to Diego Garcia in the Indian Ocean. Ships on their way to the Persian Gulf, for example, routinely stop at Subic for supplies and repairs.

The problem for the U.S. is not where to make a stand. The map of its worldwide commitments was drawn long ago and has not changed. But the U.S. does have to alter some of the expensive ways it has carried out those commitments. It has to think about what it can afford to do, not just what it wants to do. Fortunately the Soviets are stretched even more than the U.S. and thus are more restricted in how they play their own global role. The U.S. has to rearrange its line of defense to make it more efficient, more responsive to real threats. That is not retreat. F

BY ANDREW EVAN SERWER

THREE CHEERS FOR SMOKESTACK STOCKS

Just about the only winners among the FORTUNE 500 last year, they still look like good bets.

■ Though industrial America celebrates its most profitable year ever, not many stockholders are joining the festivities. Sales for the FORTUNE 500 rose 9%, and profits streaked ahead 41%. But shares of these companies, albeit partly recovered from the October crash, were down 5.5% on average in the 12 months ended March 15.

The good news was entirely in basic industry, where the dollar's drop has brought a renaissance to companies turning out metals and machinery. Not even Meltdown Monday could turn these stocks into losers. Wall Street analysts expect some of the same stocks to stay hot this year. A few investment strategists also expect certain of last year's laggards, particularly shares of some technology and consumer goods companies, to show new life.

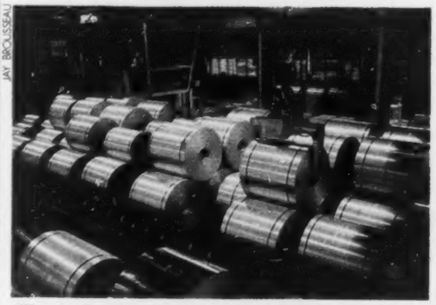
Metal stocks zoomed from the cellar position in last year's standings to the very top this year. Paced by such companies as **Bethlehem Steel**, whose shares tripled in value, the group blasted ahead 9.2% on average. "Some of these companies were at death's door," says Peter Anker, First Boston's metals analyst. "They have done a remarkable job of making themselves competitive again." Aluminum and copper producers also shone, and many analysts think their stocks will be this year's leaders because prices for both metals have soared to the highest levels in years. Vahid Fathi of Cleveland's Prescott Ball & Turben recommends aluminum maker **Reynolds Metals** and, among copper producers, **Phelps Dodge** and **Asarco**.

Takeovers, the low dollar, and an easing of America's farmland recession helped industrial and farm equipment stocks roll ahead 7.7%, good enough to put the group in second place. Recent bids for **American Standard** and **Roper** pushed their shares up over 50%. **Caterpillar**'s huge overseas business went into overdrive last year. Earnings increased more than threefold, and Cat's shares chugged ahead almost 40%. **Deere**'s tractors finally started selling again in the heartland as farmers' balance sheets im-

WINNERS AND LOSERS

THE FORTUNE 500

INDUSTRY	AVERAGE STOCK PRICE CHANGE 12 months to March 15
Metals	9.2%
Industrial, farm equipment	7.7%
Mining, crude oil production	7.1%
Rubber products	6.6%
Metal products	3.2%
Chemicals	2.2%
Transportation equipment	−0.6%
Petroleum refining	−1.2%
Tobacco	−1.2%
Building materials	−4.7%
Soaps, cosmetics	−4.7%
Publishing, printing	−5.1%
Food	−5.1%
Scientific and photographic equipment	−7.1%
Pharmaceuticals	−7.6%
Electronics	−7.8%
Textiles	−8.3%
Furniture	−10.1%
Motor vehicles and parts	−12.0%
Forest products	−12.2%
Beverages	−15.9%
Computers, office equipment	−16.1%
Aerospace	−18.7%
Apparel	−20.5%
Toys, sporting goods	−51.3%



The stocks of metal producers have become the pacesetters among FORTUNE *500 industry groups. Good times have returned to the aluminum industry, whose orders are way up. In the picture above are coils of aluminum at a Reynolds Metals mill near Hot Springs, Arkansas. Over the past year the company's shares rose by a lustrous 59%.*

proved. Charles Harris of Oppenheimer & Co., who recommends the stock, expects Deere to sell at least 10% more farm equipment this year than last. After a loss in 1987, he says, the company will earn $3.75 to $4 a share this year.

Mining companies owe their stock market success to the feeble greenback, robust commodity prices, and restructuring. "Iron ore's comeback benefited producers like **Cleveland-Cliffs** tremendously," says First Boston's Anker. Meanwhile, Britain's Beazer PLC made a takeover bid for **Koppers**, whose shares are up almost 60%.

Rubber producers' earnings bounced up nearly 50% last year, notes Donald DeScenza of Nomura Securities, and the stocks responded. Bridgestone agreed to buy control of **Firestone Tire & Rubber**, which helped inflate its shares almost 80%, far ahead of the group. **Goodyear Tire & Rubber**, up 17% over the past 12 months, cleaned house by selling off its aerospace, metal-fabricating, oil and gas, and real estate holdings. It used the proceeds to repurchase 40 million shares, which partly explains its 185% jump in earnings per share. DeScenza, who recommends Goodyear and **Cooper Tire & Rubber**, thinks strong demand will keep rubber companies burning up the track this year.

The outlook is far different for toy stocks. They have declined two years in a row, and in the latest 12 months were way to the rear, with a 51.3% average decline. For the second straight Christmas, toymakers could not come up with another blockbuster like the Cabbage Patch Kids. Meanwhile, overhead costs increased, and **Coleco Industries** and **Mattel** ended up with huge losses. Aerospace stocks also lost altitude for the second straight year. Analysts expect little life in this group, since the big military buildup has wound down.

Apparel stocks, second from last in the derby, may present a few investment opportunities. Merrill Lynch analyst Brenda Gall notes that **Liz Claiborne**, down 43% last year, sells for only 11 times her 1988 earnings estimate of $1.40 to $1.50. Gall expects earnings per share to rise at least 15% annually over the next several years and considers the stock a buy.

THE FORTUNE 500 VS. THE MARKET
12-month change through March 15, 1988

FORTUNE 500	–5.5%
S&P 500	–8.2%
Dow Jones industrials	–9.4%
Wilshire 5000	–9.8%
OTC composite	–12.8%
Value Line 1700	–13.9%

Major market indexes, particularly those dominated by small stocks, were more roughed up by the crash than the FORTUNE *500.*

Other stocks that were sleepers last year could wake up too. Abby J. Cohen, chief investment policy analyst for Drexel Burnham Lambert, believes outlays for capital equipment will increase at least 10% this year. She prefers stocks that will benefit from this spending spree, especially high-tech issues like **IBM** and **NCR**. Both sell at price/earnings multiples well below the market's.

Both Cohen and Carmine Grigoli, chief equity strategist at First Boston, like selected consumer stocks. **Philip Morris** and **Borden** are on Grigoli's recommended list, while Cohen considers **Johnson & Johnson** and **Ralston Purina** buys. Of the four, only Philip Morris's shares rose over the past 12 months. But who knows what 1988 will bring? Next year owners of these stocks could be the ones throwing the party.

A Macho Fund Makes a Little Money

■ A year ago investors with a sense of adventure—and a minimum of $100,000—poured $500 million into Shearson Lehman's new **Multiple Opportunity Fund**. Organized as an open-ended partnership, MOP gave its managers a broad charter to show off their wizardry. They could trade futures contracts, for example, buy and sell puts and calls, and invest in foreign and domestic stocks and bonds.

Their goals included beating Standard & Poor's 500-stock index, which they did. Total return for the 12½ months through March 31 was 1.94% after deducting stiff management fees that eat up 3% of the fund's average assets per year. Not too bad, considering that the S&P 500, counting reinvested dividends, was down about 7% for the same period. But anyone buying a one-year Treasury bill could have earned 6% with none of MOP's considerable risks.

The fund's managers clearly missed their second goal: never to miss "a big one." Like, say, making a killing on a 500-point drop in the Dow Jones industrial average, a dive in the bond market, or a collapse in foreign stock prices. "It was kind of a tough year," says MOP portfolio manager Michael Sherman, who is also Shearson's chief investment strategist. "We feel happy that the original capital is intact."

The managers moved mountains to keep it that way. In late summer they were heavily invested in stocks and were long in futures and options on the S&P index. After Shearson turned bearish in August, they sold off $180 million in stock—two-thirds of their equity position—and went into some of their fanciest footwork. They liquidated many of their long futures positions and sold futures short, thereby hedging against their remaining long positions in options and equities.

On Black Monday the fund was fairly well hedged except for sizable holdings in foreign stocks. "We lost money on our outright stock positions, but we made more than we lost on S&P futures," says Sherman. In the week of the crash the net asset value of MOP shares, originally offered at $50, went up 6%, to $53. It fell to a low of $49 two weeks later, following aftershocks in foreign securities, and recently closed right back at $50. In mid-March investors also received a cash distribution of 97 cents per share, which put them slightly ahead.

The fund managers proved they can preserve capital and tap-dance safely through a market earthquake. But is the meager return worth the effort? Says Sherman: "We did it the hard way. We were losing money and making it elsewhere, and basically running around like crazy doing quite aggressive investing. But we couldn't make a lot doing it."

Maybe in a different market they will. The fund was fully invested at the end of March, with 25% in bonds, 63% in U.S. equities (mostly capital goods industries), and 12% in foreign equities. The fund's investors, who

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This year, in tracking the 500's stock performance for the second time, FORTUNE has altered its methodology. The data are based entirely on companies in this year's list; previously the comparison was between the stocks of the latest 500 and the previous year's.

REPORTER ASSOCIATE *Constance A. Gustke*

FORTUNE

THE FORTUNE
500

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THE FORTUNE 500
LARGEST U.S. INDUSTRIAL CORPORATIONS

THE GOOD TIMES FINALLY ROLL

ACROSS THE Rust Belt you can hear the sound of champagne corks popping and beer cans shpritzing open: The FORTUNE 500 had its best year ever in 1987. After half a decade of sitting on the sidelines while the rest of the economy boogied, the biggest U.S. industrial corporations waltzed into the Great American Profit Party with record sales and earnings. Unfazed by the stock market crash that left many people expecting a recession, the 500's total sales climbed 9% to $1.88 trillion, up from $1.72 trillion the year before and higher than the previous record of $1.81 trillion set in 1985. But the truly impressive jump was in profits, which exploded from $64 billion to $91 billion, a 41% increase—enough to power the 500 to its biggest share ever of U.S. industry's profits (see Managing). The glow of plants running flat out through the night may be the light at the end of the tunnel for industrial America.

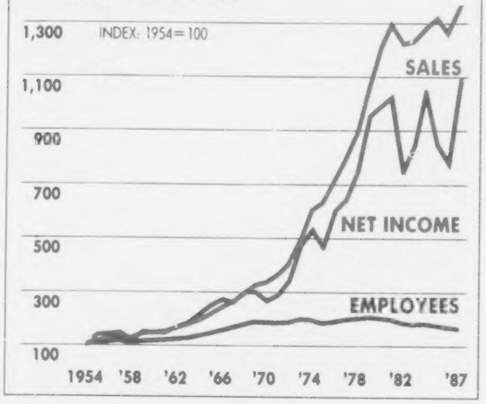
What broke the dam for this torrent of prosperity? The long expansion, which entered its fifth year with consumers still spending freely. Restructuring, which slimmed down bloated work forces (the 500's employment fell by 300,000 last year, to 13.1 million) and redirected corporate resources to more efficient uses. And increasingly as the year wore on, the weak dollar. Imports remain strong—Americans hate to give up their Sonys and Toyotas, even if they are a tad more expensive. But yen and deutsche marks that buy twice as much as they did three years ago have restored the allure abroad of

▼ *A service economy still needs its manufacturers. In South Mountain, California, earth stations made by Harris (No. 187) and Scientific-Atlanta (483) track the satellites of GE's American Communications subsidiary.*

▶ *In a comeback year, sales of the 500 got back on track, and profit gains were the steepest since the recovery from the 1982 recession. The number of people employed by the 500 continued to decline.*

▶ *Reaping the fruits of restructuring and fortified by the strong dollar, the 500 gained by virtually every measure. The only downer: returns to investors, savaged by the market crash.*

THE 500: 1954-87



THE 500: 1987 vs. 1986

	1987	1986
SALES (billions)	$1,879.5	$1,723.6
CHANGE IN SALES	9.1%	−4.6%
PROFITS (billions)	$90.6	$64.1
CHANGE IN PROFITS	41.3%	−7.9%
ASSETS (billions)	$1,705.7	$1,560.8
NUMBER OF SALES INCREASES	415	327
NUMBER OF PROFIT INCREASES	313	251
NUMBER OF MONEY LOSERS	48	72
MEDIAN RETURN ON SALES	4.6%	4.1%
MEDIAN RETURN ON ASSETS	6.0%	5.2%
MEDIAN RETURN ON EQUITY	13.2%	11.6%
MEDIAN TOTAL RETURN TO INVESTORS	6.8%	16.1%
NUMBER OF EMPLOYEES (millions)	13.1	13.4

products bearing the imprint "Made in the U.S.A."

The top five rankings on the FORTUNE 500 remained unchanged from 1986, but General Motors looked like less of a leader as No. 2 Exxon and No. 3 Ford Motor gained on it. Of the top 20 companies, 16 had higher sales and 14 higher profits. Just playing in the 500 league required more sales than ever. The 500th company this year, M.A. Hanna, had sales of $459 million. The cutoff in 1986, a bad year for the group, was only $420 million; the highest previous threshold was $455 million in 1981.

It was a gala year for corporate marriages, shotgun or otherwise. Twelve companies increased their revenues by acquiring other 500 companies, clearing the way for fast-growing newcomers to join the list. Chrysler, for example, advanced one notch to 10th place when it bought American Motors. Baker International merged with Hughes Tool, while Chromalloy American succumbed to Sun Chemical's blandishments; the two became Sequa. Many of the suitors were foreigners, taking advantage of the weak dollar. German-owned American Hoechst nearly tripled its sales and made its name even harder to pronounce by merging with Celanese to form Hoechst Celanese. Unilever added Chesebrough-Pond's to its string of American operations. And British Petroleum, in the biggest deal of the year, acquired what it didn't already own of Standard Oil for $8 billion. The new company, No. 22 on the list, is called BP America. A total of 19 companies on the U.S. 500, representing $78 billion in sales and $3.7 billion in profits, are now owned by companies on the International 500.

The wanton coupling of corporations frightened some top

D2

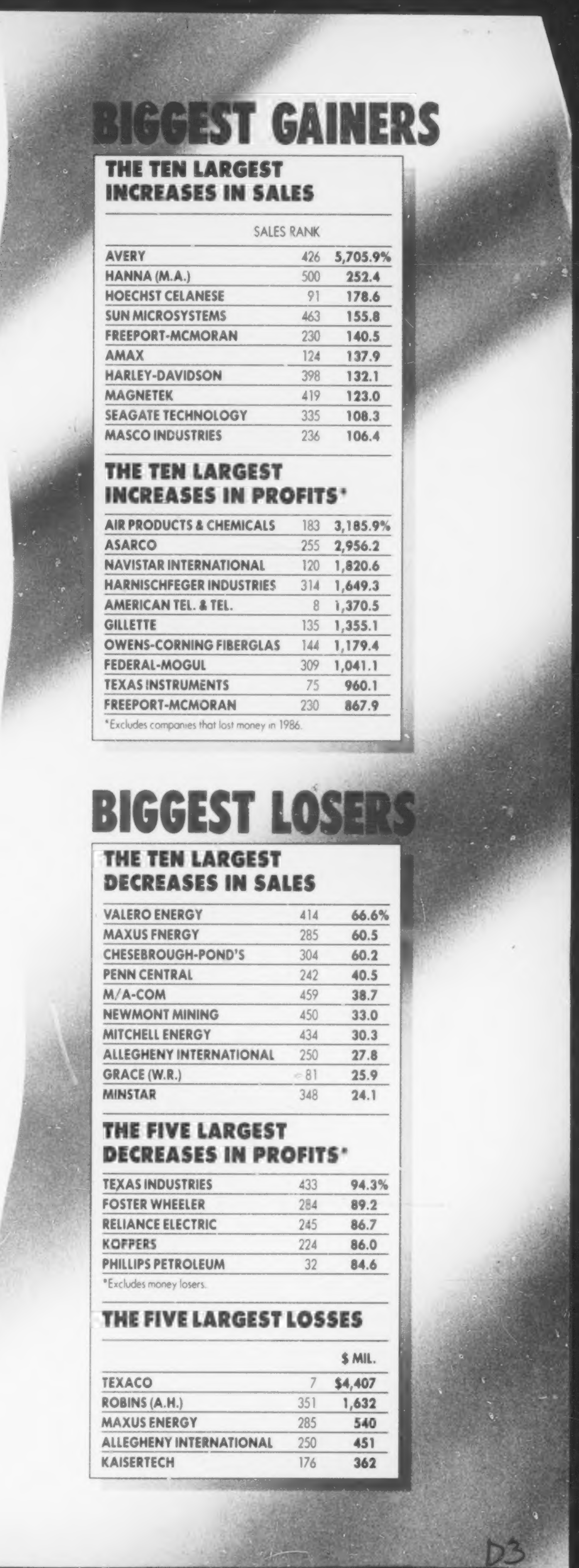
executives so much they made their companies unappealing. Harcourt Brace, Newmont Mining, and Goodyear deterred suitors by taking on heavy loads of debt through leveraged recapitalizations. Other companies, such as Borg-Warner, Owens-Illinois, and Jim Walter, submitted to LBOs. Spinoffs were also popular, and the widespread restructuring of Corporate America continued to reshape the list. Among the new entrants were several companies thus created in 1986: Reliance Electric, spun off from Exxon; Aristech, divested by USX; and Coca-Cola Enterprises, a $3.3 billion company that includes bottling operations unloaded by Coca-Cola. The Real Thing dropped from No. 38 to No. 54 because of an adjustment to reflect the impending spinoff of Columbia Pictures. Meanwhile, profits and sales fizzed skyward at rival PepsiCo, putting the Choice of a New Generation at No. 29.

Reflecting their piddling equity bases, LBOs and spinoffs head the ranks of companies with the highest sales per dollar of stockholders' equity. But Magnetek, a producer of electrical equipment created three years ago from pieces of Litton Industries, topped them all at $61.88 per equity dollar. Its electrifying performance put it at No. 419 on the list, and also among the top in sales increases and return on equity.

The most powerful engines driving the smokestack revival were basic industries such as forest products and chemicals, which got the most leverage out of the fallen dollar. Nobody did better than the purveyors of paper, with a median sales increase of 17.9% and an astounding median profit increase of 60%. Seven of the companies in the industry more than doubled their profits, showing how much green paper the makers can churn out when their plants are running at capacity. Chemical companies, with a median increase of 29% in profits, also took advantage of unprecedented foreign and domestic demand. Profits at Air Products & Chemicals, a manufacturer of industrial gases such as helium, defied gravity by climbing more than 30-fold to make the company the biggest profit gainer on the 500. The business even attracted B.F. Goodrich, which became a straight-out chemical company when it spun off its tire and rubber operations.

Steel and textile companies, still fending off imports from Japan and Europe, nonetheless managed an impressive showing. As an industry, metals had the highest total return to investors, which includes both price appreciation and dividend yield. Its 51% gain was a remarkable turnaround from 1986 when the industry had the *worst* performance. Up until a year ago, Wall Street was ready to throw steel company stocks into the scrapyard. But exports took off like sparks from a foundry, and the stock market responded accordingly. Lukens, a manufacturer of steel plate and a newcomer to the list at No. 478, had the highest total return to investors of any FORTUNE 500 company—236%. Even LTV, which lost $3.25 billion in 1986, made money. The weak dollar helped give the textile industry a 24% increase in profits, but it could not prevent foreign competitors from gaining market share. And it did nothing for return to investors, which turned negative.

Petroleum refiners, who perennially dominate the top ranks of the 500, continued to struggle with depressed oil prices. Total profits for the industry barely climbed over last year's disas-



BIGGEST GAINERS

THE TEN LARGEST INCREASES IN SALES

	SALES RANK	
AVERY	426	5,705.9%
HANNA (M.A.)	500	252.4
HOECHST CELANESE	91	178.6
SUN MICROSYSTEMS	463	155.8
FREEPORT-MCMORAN	230	140.5
AMAX	124	137.9
HARLEY-DAVIDSON	398	132.1
MAGNETEK	419	123.0
SEAGATE TECHNOLOGY	335	108.3
MASCO INDUSTRIES	236	106.4

THE TEN LARGEST INCREASES IN PROFITS*

AIR PRODUCTS & CHEMICALS	183	3,185.9%
ASARCO	255	2,956.2
NAVISTAR INTERNATIONAL	120	1,820.6
HARNISCHFEGER INDUSTRIES	314	1,649.3
AMERICAN TEL. & TEL.	8	1,370.5
GILLETTE	135	1,355.1
OWENS-CORNING FIBERGLAS	144	1,179.4
FEDERAL-MOGUL	309	1,041.1
TEXAS INSTRUMENTS	75	960.1
FREEPORT-MCMORAN	230	867.9

*Excludes companies that lost money in 1986.

BIGGEST LOSERS

THE TEN LARGEST DECREASES IN SALES

VALERO ENERGY	414	66.6%
MAXUS ENERGY	285	60.5
CHESEBROUGH-POND'S	304	60.2
PENN CENTRAL	242	40.5
M/A-COM	459	38.7
NEWMONT MINING	450	33.0
MITCHELL ENERGY	434	30.3
ALLEGHENY INTERNATIONAL	250	27.8
GRACE (W.R.)	81	25.9
MINSTAR	348	24.1

THE FIVE LARGEST DECREASES IN PROFITS*

TEXAS INDUSTRIES	433	94.3%
FOSTER WHEELER	284	89.2
RELIANCE ELECTRIC	245	86.7
KOPPERS	224	86.0
PHILLIPS PETROLEUM	32	84.6

*Excludes money losers.

THE FIVE LARGEST LOSSES

		$ MIL.
TEXACO	7	$4,407
ROBINS (A.H.)	351	1,632
MAXUS ENERGY	285	540
ALLEGHENY INTERNATIONAL	250	451
KAISERTECH	176	362

PHOTOGRAPH BY JOE MCNALLY. DESIGN BY ELIOT BERGMAN

D3

LEADERS MEASURED THREE WAYS

THE TEN HIGHEST RETURNS ON STOCKHOLDERS' EQUITY

	SALES RANK	
AFFILIATED PUBLICATIONS	486	**62.1%**
GEORGIA GULF	392	**57.4**
RALSTON PURINA	70	**54.4**
FAIRCHILD INDUSTRIES	346	**49.5**
MAGNETEK	419	**49.5**
GAF	356	**46.7**
MERCK	80	**42.8**
JEFFERSON SMURFIT	301	**42.2**
UNION TEXAS PETROLEUM	274	**42.2**
GOODYEAR TIRE & RUBBER	35	**42.0**
THE 500 MEDIAN		**13.2**

THE TEN HIGHEST RETURNS ON ASSETS

	SALES RANK	
GENCORP	139	**42.9%**
AFFILIATED PUBLICATIONS	486	**37.8**
GEORGIA GULF	392	**26.5**
UST	445	**23.8**
CLAIBORNE (LIZ)	312	**23.7**
HERCULES	150	**23.5**
MARION LABORATORIES	430	**21.4**
TAMBRANDS	462	**18.8**
AMERICAN HOME PRODUCTS	82	**18.3**
GAF	356	**18.3**
THE 500 MEDIAN		**6.0**

THE TEN HIGHEST RETURNS ON SALES

	SALES RANK	
NEWMONT MINING	450	**61.0%**
AFFILIATED PUBLICATIONS	486	**41.0**
HERCULES	150	**30.5**
GAF	356	**28.4**
HOMESTAKE MINING	471	**28.4**
UST	445	**23.2**
CRAY RESEARCH	397	**21.4**
ASARCO	255	**20.6**
HIMONT	292	**19.5**
MERCK	80	**17.9**
THE 500 MEDIAN		**4.6**

trous levels, though part of the blame lies with Texaco, No. 7 on the 500. Texaco had the worst loss ever incurred by a U.S. company, a walloping $4.4 billion, largely because of its $3 billion settlement with Pennzoil. No. 2 Exxon and No. 5 Mobil saw their profits dip for the second year in a row. Valero Energy, a San Antonio refiner, suffered the largest decrease in sales of any 500 company, 66.6%, after it shed its gas pipeline operations.

Though General Motors remained the world's biggest industrial corporation, Ford Motor humbled it in sheer performance. Ford sales climbed 14%, while those of GM fell 1%. And Ford's earnings accelerated 41% to $4.6 billion, nearly as much as the profits of GM and Chrysler combined.

The computer industry maintained its recovery in 1987 with a median increase in sales of 16% and a median rise in earnings of 27%. Compaq Computer continued to click, competing head-to-head with IBM's personal computers. The Texas company broke into the 500 in 1985, only four years after its founding, and now ranks No. 282. Better yet, it was the industry leader in total return to investors, at 187.7%.

The pharmaceutical industry swept FORTUNE 500 honors in returns on sales and assets. Merck fattened its year-end earnings when it introduced the anti-cholesterol drug Mevacor. A.H. Robins, despite a $1.6 billion loss for the year because of the Dalkon Shield imbroglio, continued to lead the industry in total return to investors. In second place was Marion Laboratories, a newcomer to the 500 that produces drugs for treating heart disease, with profit margins that would make any investor's heart skip a beat.

Aerospace companies stalled last year in a defense-spending downdraft. The industry eked out a median 4% profit gain on a slender 5% sales increase. Food companies produced considerably more palatable results, with a median profit increase of 20%. ConAgra, which sells everything from Chun King Chinese food to Country Skillet catfish, jumped from No. 59 to No. 41 after acquiring Monfort of Colorado. Swift Independent also lost its independence to ConAgra, which swallowed 50% of the meatpacker's holding company.

The weak dollar provided some long overdue help to companies selling industrial and farm equipment. This industry was the fourth-highest profit gainer behind forest products, metals, and rubber products, with a median earnings increase of 42.4%. No one benefited more than Caterpillar, which sends shiploads of its tractors and backhoes overseas. Cat suffered big losses for three consecutive years when the dollar was strong and Japan's Komatsu dug into its market share. But as the dollar faltered, Cat was able to raise prices more slowly than its competitors. It went into the black in 1985; last year profits rose 361% and total return to investors hit 56%. Things didn't go as smoothly for machine tool companies, which faced grinding competition from the Germans and Japanese. An $80 million loss drilled a hole into Cincinnati Milacron's income statement.

High-tech firms usually dominate the ranks of newcomers joining the 500 each year, but in 1987 fast-growing chemical, motor vehicle, and publishing companies also shoved their way onto the list. M.A. Hanna, the new No. 500, was on until 1976 as the venerable Hanna Mining. After the iron ore market caved in during the early 1980s, Hanna all but folded. Then it made specialty chemicals its core business. Hanna's 252.4% sales growth last year, compounded by four acquisitions in 1987, made it the second-largest revenue gainer on the 500. Avery, the largest, was spun out of Triangle Industries and acquired the chemical business of Uniroyal; it is No. 426. Great Lakes Chemical, No. 481, with an increase of 67% in revenues and 107% in net income, is the world's largest producer of bromine and pulled in over $100 million from export sales.

Also cruising into the FORTUNE 500 pack at No. 398 is motorcycle manufacturer Harley-Davidson. The 1986 acquisition of Holiday Rambler, a maker of motor homes and RVs, helped. But Harley popped some wheelies of its own. Harley executives like to say that their company is the only one with customers so loyal they tattoo the company's logo on their biceps. Behind a tariff imposed on competing imported bikes, it modernized its factories and adopted Japanese-style production methods during the mid-1980s. Last year, the overhaul complete, Harley asked that the tariff be rescinded. President Reagan visited a Harley plant in York, Pennsylvania, to honor the company's return to competitiveness. Said Reagan: "We're on the road to unprecedented prosperity in this country, and we'll get there on a Harley."

Sun Microsystems, a California computer company founded in 1982 by four 27-year-olds, logged on to the 500 at No. 463 after a 156% increase in sales and a tripling of profits. Affiliated Publications, owner of the Boston *Globe,* jumped on at No. 486 with a phenomenal profit performance: $201 million in earnings out of $490 million in sales. Although newspaper profits were healthy, Affiliated made most of that money when a cellular telephone company it has a minority stake in went public.

America's industrial giants still have a tough fight ahead in the ever more competitive global marketplace. But last year's record sales and profits provided badly needed reassurance to the managers and workers who survived the pain of cost cutting and restructuring that their efforts were not in vain. For the FORTUNE 500, 1987 was the year the promises came true.

—Mark Alpert and Sandra L. Kirsch

INVESTMENT PERFORMANCE

THE TEN HIGHEST TOTAL RETURNS TO INVESTORS, 1977-87 ANNUAL AVERAGE*

	SALES RANK	
TYSON FOODS	207	**46.4%**
HASBRO	262	**46.2**
AFG INDUSTRIES	488	**45.7**
AFFILIATED PUBLICATIONS	486	**44.8**
CRAY RESEARCH	397	**42.7**
MARION LABORATORIES	430	**42.2**
SCHULMAN (A.)	498	**36.7**
TANDEM COMPUTERS	318	**35.6**
TRIANGLE INDUSTRIES	98	**35.2**
GUILFORD MILLS	461	**34.1**
THE FIVE LOWEST		
ALLIS-CHALMERS	394	**−24.8%**
MANVILLE	190	**−20.4**
NAVISTAR INTERNATIONAL	120	**−16.0**
ALLEGHENY INTERNATIONAL	250	**−13.7**
AM INTERNATIONAL	293	**−10.8**
THE 500 MEDIAN		**17.2**

*Total return includes stock gains plus dividends.

THE TEN HIGHEST TOTAL RETURNS TO INVESTORS, 1987*

	SALES RANK	
LUKENS	478	**235.5%**
COMPAQ COMPUTER	282	**187.7**
GEORGIA GULF	392	**182.9**
BETHLEHEM STEEL	89	**168.0**
DWG	286	**166.7**
ROBINS (A.H.)	351	**160.3**
VISTA CHEMICAL	421	**142.5**
REYNOLDS METALS	101	**142.1**
PHELPS DODGE	221	**127.3**
ARMCO	143	**119.5**
THE FIVE LOWEST		
ALLEGHENY INTERNATIONAL	250	**−78.0%**
UNITED MERCHANTS & MFRS.	375	**−68.8**
ALLIED PRODUCTS	482	**−60.4**
ALLIS-CHALMERS	394	**−57.1**
FIELDCREST CANNON	247	**−55.9**
THE 500 MEDIAN		**6.8**

*Total return includes stock gains plus dividends.

PRODUCTIVITY

THE TEN HIGHEST IN SALES PER EMPLOYEE

	SALES RANK	**$ THOU.**
TOSCO	290	**$1,381**
AG PROCESSING	400	**1,150**
PACIFIC RESOURCES	338	**1,053**
NATIONAL COOP. REFINERY	448	**1,003**
LOUISIANA LAND & EXPL.	361	**981**
EXXON	2	**764**
AMERICAN PETROFINA	161	**737**
UNION TEXAS PETROLEUM	274	**721**
GEORGIA GULF	392	**712**
TEXACO	7	**685**
THE FIVE LOWEST		
BORG-WARNER	119	**$49**
MAGNETEK	419	**49**
RUSSELL	491	**48**
OXFORD INDUSTRIES	455	**46**
KELLWOOD	441	**41**
THE 500 MEDIAN		**124**

THE TEN HIGHEST IN SALES PER DOLLAR OF STOCKHOLDERS' EQUITY

	SALES RANK	
MAGNETEK	419	**$61.88**
KNOLL INT'L HOLDINGS	191	**39.97**
JOY TECHNOLOGIES	403	**34.99**
RELIANCE ELECTRIC	245	**34.34**
BURLINGTON HOLDINGS	130	**33.01**
SMITHFIELD FOODS	316	**30.52**
BEATRICE	42	**28.98**
BORG-WARNER	119	**26.11**
CENTRAL SOYA	229	**21.80**
THORN APPLE VALLEY	425	**20.63**
THE FIVE LOWEST		
GEORGIA KRAFT	474	**$1.03**
CYPRUS MINERALS	367	**.94**
PENN CENTRAL	242	**.86**
HOMESTAKE MINING	471	**.73**
SEAGRAM (JOSEPH E.) & SONS	192	**.54**
THE 500 MEDIAN		**2.77**

THE FORTUNE 500
LARGEST U.S. INDUSTRIAL CORPORATIONS

RANK		COMPANY	SALES		PROFITS			ASSETS		STOCKHOLDERS' EQUITY	
1987	1986		$ Millions	% change from 1986	$ Millions	Rank	% change from 1986	$ Millions	Rank	$ Millions	Rank
1	1	**GENERAL MOTORS** Detroit	101,781.9	(1.0)	3,550.9	4	20.6	87,421.9	1	33,225.1	3
2	2	**EXXON** New York	76,416.0*	9.3	4,840.0	2	(9.7)	74,042.0	2	33,626.0	2
3	3	**FORD MOTOR** Dearborn, Mich.	71,643.4	14.2	4,625.2	3	40.8	44,955.7	4	18,492.7	4
4	4	**INTERNATIONAL BUSINESS MACHINES** Armonk, N.Y.	54,217.0	5.8	5,258.0	1	9.8	63,688.0	3	38,263.0	1
5	5	**MOBIL** New York	51,223.0*	14.2	1,258.0	11	(10.6)	41,140.0	5	16,783.0	5
6	6	**GENERAL ELECTRIC** Fairfield, Conn.	39,315.0	11.7	2,915.0	5	17.0	38,920.0	6	16,480.0	6
7	8	**TEXACO** White Plains, N.Y.	34,372.0*	8.7	(4,407.0)	480	—	33,962.0	9	9,171.0	12
8	7	**AMERICAN TEL. & TEL.** New York	33,598.0	(1.4)	2,044.0	6	1,370.5	38,426.0	7	14,455.0	9
9	9	**E.I. DU PONT DE NEMOURS** Wilmington, Del.	30,468.0	12.2	1,786.0	8	16.1	28,209.0	10	14,244.0	10
10	11	**CHRYSLER** Highland Park, Mich.[1]	26,257.7	16.6	1,289.7	10	(8.1)	19,944.6	15	6,502.9	15
11	10	**CHEVRON** San Francisco	26,015.0*	6.8	1,007.0	19	40.8	34,465.0	8	15,780.0	7
12	12	**PHILIP MORRIS** New York	22,279.0*	7.7	1,842.0	7	24.6	19,145.0	17	6,823.0	14
13	15	**SHELL OIL** Houston[2]	20,852.0*	23.9	1,230.0	13	39.3	26,937.0	11	14,842.0	8
14	13	**AMOCO** Chicago	20,174.0*	10.4	1,360.0	9	82.1	24,827.0	12	12,107.0	11
15	17	**UNITED TECHNOLOGIES** Hartford	17,170.2	9.6	591.7	37	713.6	11,928.6	28	4,292.6	31
16	19	**OCCIDENTAL PETROLEUM** Los Angeles	17,096.0	11.4	240.0**	95	32.5	16,739.0	20	5,164.0	25
17	18	**PROCTER & GAMBLE** Cincinnati[3]	17,000.0	10.1	327.0	69	(53.9)	13,715.0	23	5,990.0	19
18	20	**ATLANTIC RICHFIELD** Los Angeles	16,281.4	11.6	1,224.3	14	99.0	22,669.9	14	5,877.5	20
19	14	**RJR NABISCO** Atlanta	15,868.0	(6.6)	1,209.0	15	13.6	16,861.0	19	6,038.0	17
20	16	**BOEING** Seattle	15,355.0	(6.0)	480.0	46	(27.8)	12,566.0	26	4,987.0	29
21	21	**TENNECO** Houston	15,075.0	3.6	(218.0)	474	—	18,503.0	18	3,773.0	36
22	35	**BP AMERICA** Cleveland[4]	14,611.0*	58.5	564.0	41	—	23,287.0	13	5,574.0	22
23	22	**USX** Pittsburgh	13,898.0*	(0.7)	219.0	106	—	19,557.0	16	5,529.0	23
24	27	**DOW CHEMICAL** Midland, Mich.	13,377.0	20.4	1,240.0	12	69.4	14,356.0	22	5,769.0	21
25	26	**EASTMAN KODAK** Rochester, N.Y.	13,305.0	15.2	1,178.0	16	215.0	14,451.0	21	6,013.0	18
26	23	**MCDONNELL DOUGLAS** St. Louis	13,146.1	3.8	313.0	73	12.8	8,535.6	38	2,969.9	50
27	24	**ROCKWELL INTERNATIONAL** Pittsburgh[5]	12,123.4	(1.4)	635.1	33	3.9	8,739.2	36	3,314.2	43
28	25	**ALLIED-SIGNAL** Morristown, N.J.	11,597.0	(1.7)	656.0	30	8.4	10,226.0	30	3,129.0	46
29	34	**PEPSICO** Purchase, N.Y.	11,500.2	23.8	594.8	36	30.0	9,022.7	35	2,508.6	57
30	30	**LOCKHEED** Calabasas, Calif.	11,370.0	10.7	421.0	54	3.2	6,301.0	56	2,087.0	67
31	37	**KRAFT** Glenview, Ill.	11,010.5¶	25.9	489.4	45	18.5	5,486.7	61	1,898.4	71
32	31	**PHILLIPS PETROLEUM** Bartlesville, Okla.	10,721.0	9.6	35.0	324	(84.6)	12,111.0	27	1,617.0	81
33	28	**WESTINGHOUSE ELECTRIC** Pittsburgh	10,679.0	(0.5)	738.9	27	10.2	9,953.1	33	3,576.6	40
34	32	**XEROX** Stamford, Conn.[6]	10,320.0	10.1	578.0	39	24.3	11,598.0	29	5,105.0	26
35	29	**GOODYEAR TIRE & RUBBER** Akron, Ohio	10,123.2	(2.0)	770.9	26	521.2	8,395.9	41	1,834.4	75
36	46	**UNISYS** Blue Bell, Pa.	9,712.9	30.7	578.0	38	—	9,958.0	32	4,544.7	30
37	39	**MINNESOTA MINING & MANUFACTURING** St. Paul	9,429.0	9.6	918.0	20	17.8	8,031.0	44	5,060.0	27
38	44	**DIGITAL EQUIPMENT** Maynard, Mass.[3]	9,389.4	23.7	1,137.4	17	84.2	8,407.4	40	6,293.5	16
39	36	**GENERAL DYNAMICS** St. Louis	9,344.0	1.4	437.3	52	—	5,031.8	68	1,601.0	83
40	40	**SARA LEE** Chicago[3]	9,154.6	15.3	267.1	80	19.5	4,191.7	88	1,416.0	101
41	59	**CONAGRA** Omaha[7,8]	9,001.6	52.3	148.7	148	41.3	2,482.5	150	722.5	195
42	•	**BEATRICE** Chicago[9]	8,926.0[10]	6.3	N.A.		—	7,903.0	46	308.0	332
43	33	**SUN** Radnor, Pa.	8,691.0	(7.3)	348.0	64	(9.6)	12,580.0	25	5,229.0	24
44	50	**GEORGIA-PACIFIC** Atlanta	8,603.0	19.1	458.0	49	54.7	5,870.0	58	2,680.0	55
45	41	**ITT** New York[6]	8,551.0	8.3	1,018.1	18	106.2	13,354.3	24	7,819.5	13
46	45	**UNOCAL** Los Angeles	8,466.0*	13.2	181.0	129	2.8	10,062.0	31	1,766.0	76
47	43	**ANHEUSER-BUSCH** St. Louis	8,258.4*	7.6	614.7	35	18.7	6,491.6	54	2,892.2	53
48	47	**CATERPILLAR** Peoria, Ill.	8,180.0	11.7	350.0	63	360.5	6,866.0	52	3,565.0	41
49	51	**HEWLETT-PACKARD** Palo Alto, Calif.[11]	8,090.0	13.9	644.0	31	24.8	8,133.0	43	5,022.0	28
50	53	**JOHNSON & JOHNSON** New Brunswick, N.J.	8,012.0	14.4	833.0	24	152.8	6,546.0	53	3,485.0	42

The definitions, explanations, and footnotes underlying the figures in this directory are on page D33.

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MARKET VALUE		PROFITS AS PERCENT OF						EARNINGS PER SHARE				TOTAL RETURN TO INVESTORS				INDUSTRY TABLE NUMBER	RANK
		SALES		ASSETS		STOCKHOLDERS' EQUITY			% change from 1986	1977-87 annual growth rate		1987		1977-87 annual average			
$ Millions	Rank	%	Rank	%	Rank	%	Rank	1987/$		%	Rank	%	Rank	%	Rank		
22,314.9	5	3.5	307	4.1	336	10.7	314	10.06	22.5	(1.4)	310	(0.6)	276	6.9	345	17	1
58,074.5	2	6.3	165	6.5	217	14.4	213	3.43	(7.5)	9.8	160	13.7	163	20.9	133	18	2
21,665.6	7	6.5	161	10.3	75	25.0	50	9.05	46.9	11.1	138	39.1	67	20.1	149	17	3
68,063.9	1	9.7	66	8.3	144	13.7	227	8.72	11.7	6.7	207	(0.7)	277	10.3	310	6	4
17,842.7	11	2.5	369	3.1	360	7.5	366	3.06	(11.3)	2.6	273	2.5	256	16.8	211	18	5
39,770.3	3	7.4	127	7.5	181	17.7	148	3.20	17.2	10.3	152	5.3	233	18.4	173	7	6
10,869.8	27	—		—		—		(18.15)	—	—		6.1	229	11.1	299	18	7
30,733.9	4	6.1	172	5.3	278	14.1§	221	1.88	3,660.0	(12.3)	344	12.9	168	5.0	361	7	8
20,626.3	9	5.9	181	6.3	229	12.5	261	7.39	16.4	7.2	201	7.4	217	14.3	245	5	9
5,353.9	56	4.9	224	6.5	219	19.8	102	5.90	(6.5)	17.2	47	(7.7)	315	17.1	204	17	10
15,779.8	14	3.9	284	2.9	365	6.4	376	2.94	40.7	(0.1)	300	(8.3)	320	13.8	255	18	11
21,998.4	6	8.3	100	9.6	100	27.0	42	7.75	25.0	18.7	37	22.8	120	23.4	84	25	12
N.A.		5.9	180	4.6	320	8.3	357	N.A.	—	—		—		—		18	13
19,322.6	10	6.7	147	5.5	270	11.2	298	5.31	82.5	4.4	243	10.4	187	16.9	208	18	14
5,314.3	57	3.4	317	5.0	303	13.8	226	4.52	1,574.1	4.8	239	(24.0)	386	11.2	298	1	15
5,769.3	49	1.4	401	1.4	403	4.6§	395	1.06**	47.2	(9.6)	336	(4.7)	299	9.1	327	6	16
13,691.4	21	1.9	382	2.4	381	5.5	384	1.87	(55.5)	(3.9)	326	15.2	156	11.7	290	23	17
13,815.2	20	7.5	122	5.4	275	20.8	84	6.68	97.6	8.8	174	21.0	128	16.5	218	18	18
12,615.2	22	7.6	117	7.2	192	20.0§	97	4.70	22.7	10.4	150	(5.6)	303	21.0	129	25	19
7,423.6	33	3.1	337	3.8	345	9.6	340	3.10	(27.6)	9.5	164	(25.4)	390	20.5	143	1	20
6,598.8	38	—		—		—		(1.81)	—	—		10.8	181	10.2	315	18	21
N.A.		3.9	285	2.4	380	10.1	331	N.A.	—	—		—		—		18	22
8,524.3	31	1.6	393	1.1	412	4.0§	399	0.54	—	(10.6)	338	44.0	54	5.3	359	18	23
16,026.3	13	9.3	77	8.6	130	21.5	76	6.47	69.4	8.0	185	58.0	28	18.8	168	5	24
13,936.3	19	8.9	86	8.2	150	19.6	106	3.62	227.1	7.4	198	10.4	186	13.2	266	22	25
2,414.9	123	2.4	371	3.7	347	10.5	316	7.75	13.0	9.2	166	(13.9)	353	11.3	297	1	26
5,289.2	59	5.2	210	7.3	188	19.2	116	2.27	10.2	15.8	65	(13.9)	352	22.7	92	1	27
4,798.4	65	5.7	192	6.4	222	21.0§	82	3.90	19.6	2.0	282	(26.2)	397	5.6	357	1	28
9,147.0	29	5.2	212	6.6	215	23.7	62	2.26	29.1	12.2	119	30.9	89	17.8	189	3	29
2,677.2	106	3.7	296	6.7	211	20.2	96	6.41	3.7	17.9	44	(29.4)	411	22.2	107	1	30
7,178.2	36	4.4	258	8.9	122	25.8	45	3.60	22.9	7.0	203	2.8	252	21.0	128	8	31
3,653.6	85	0.3	425	0.3	428	2.2§	412	0.06	(93.3)	(25.4)	358	24.4	115	9.9	318	18	32
7,231.2	35	6.9	143	7.4	184	20.7	88	5.12	15.8	13.6	94	(8.2)	317	24.0	75	7	33
5,655.4	52	5.6	194	5.0	299	11.3	295	5.35	25.0	0.6	294	(1.6)	286	7.9	337	22	34
3,574.2	86	7.6	118	9.2	114	42.0	10	12.73	997.4	16.1	59	47.1	45	20.5	142	21	35
5,248.0	61	6.0	177	5.8	249	12.7	256	3.15	—	5.9	215	29.2	98	7.9	336	6	36
14,189.9	18	9.7	63	11.4	59	18.1	140	4.02	18.2	8.5	179	13.5	164	15.1	236	22	37
15,113.4	15	12.1	34	13.5	31	18.1	141	8.53	77.3	19.9	30	28.9	99	19.3	163	6	38
2,263.9	130	4.7	237	8.7	127	27.3	41	10.26	—	18.4	40	(26.9)	401	20.4	145	1	39
4,636.6	67	2.9	347	6.4	226	18.9	124	2.35	16.3	12.4	115	6.6	221	25.4	62	8	40
1,947.6	148	1.7	391	6.0	241	20.6	90	1.85	21.3	16.6	54	(9.4)	324	33.4	12	8	41
N.A.		—		—		—		—	—	—		—		—		8	42
6,037.8	44	4.0	280	2.8	370	6.7	372	3.21	(9.3)	(1.2)	307	(0.3)	275	15.3	234	18	43
3,888.4	79	5.3	204	7.8	169	17.1§	164	4.23	57.2	5.2	230	(4.3)	298	5.8	354	9	44
6,316.3	40	11.9	38	7.6	174	13.0	246	6.76	109.3	5.2	231	40.7	62	15.8	226	7	45
4,225.4	76	2.1	376	1.8	394	10.2	327	1.56	3.3	(2.3)	315	9.2	195	11.8	289	18	46
10,419.9	28	7.4	125	9.4	106	21.3	77	2.04	20.7	19.6	32	29.7	96	29.6	23	3	47
6,554.4	39	4.3	268	5.1	295	9.8	336	3.51	355.8	(3.8)	325	55.9	30	4.4	368	11	48
16,054.6	12	8.0	108	7.9	158	12.8	252	2.50	23.8	16.7	53	39.7	64	21.0	130	6	49
14,477.6	16	10.4	56	12.7	40	23.9	60	4.83	161.1	13.1	104	16.2	151	14.2	248	19	50

THE FORTUNE 500
LARGEST U.S. INDUSTRIAL CORPORATIONS

RANK		COMPANY	SALES		PROFITS			ASSETS		STOCKHOLDERS' EQUITY	
1987	1986		$ Millions	% change from 1986	$ Millions	Rank	% change from 1986	$ Millions	Rank	$ Millions	Rank
51	79	**ALUMINUM CO. OF AMERICA** Pittsburgh	7,767.0	66.4	200.1‡	120	(21.3)	9,901.9	34	3,910.7	33
52	66	**INTERNATIONAL PAPER** Purchase, N.Y.	7,763.0	41.1	407.0	56	33.4	8,710.0	37	4,052.0	32
53	48	**RAYTHEON** Lexington, Mass.	7,659.4	4.8	445.1	51	13.2	4,062.2	92	1,849.1	73
54	38	**COCA-COLA** Atlanta	7,658.3	(11.7)	916.1	21	(1.9)	8,355.6	42	3,223.8	45
55	55	**MONSANTO** St. Louis	7,639.0	11.0	436.0	53	0.7	8,455.0	39	3,901.0	34
56	49	**LTV** Dallas	7,581.8	4.3	502.6	44	—	5,706.1	59	(2,045.4)	493
57	57	**COASTAL** Houston	7,413.9	11.2	113.1	178	58.0	7,989.3	45	859.6	166
58	62	**WEYERHAEUSER** Tacoma	6,989.8	23.7	446.6	50	61.4	7,201.9	50	3,716.2	38
59	42	**UNION CARBIDE** Danbury, Conn.	6,914.0	(11.7)	232.0	98	(53.2)	7,892.0	47	1,247.0	115
60	54	**ASHLAND OIL** Russell, Ky.[5]	6,870.9	(1.7)	133.4	166	(36.0)	4,058.0	93	1,065.4	136
61	58	**TRW** Cleveland	6,821.2	5.8	243.4	94	11.8	4,377.5	83	1,416.7	100
62	60	**MOTOROLA** Schaumburg, Ill.	6,707.0	13.9	308.0	75	58.8	5,321.0	64	3,008.0	49
63	52	**HONEYWELL** Minneapolis	6,679.3	(5.7)	253.7	85	—	5,285.2	66	2,245.3	61
64	70	**BORDEN** New York	6,514.4	30.2	267.1	81	19.6	4,157.4	90	1,658.8	79
65	68	**AMERICAN BRANDS** Old Greenwich, Conn.	6,323.4*,¶	20.2	522.7	43	43.1	7,343.1	49	2,966.4	51
66	63	**BAXTER TRAVENOL LABORATORIES** Deerfield, Ill.	6,223.0	10.5	331.0	68	(25.5)	7,638.0	48	3,713.0	39
67	73	**EMERSON ELECTRIC** St. Louis[5]	6,170.3	24.6	467.2	48	14.3	4,867.8	73	2,702.5	54
68	61	**PILLSBURY** Minneapolis[7]	6,127.8	4.8	181.9	128	(12.6)	3,853.0	98	1,378.9	104
69	64	**NORTHROP** Los Angeles	6,052.5	7.9	94.2	194	128.6	3,123.6	115	947.5	150
70	65	**RALSTON PURINA** St. Louis[5]	5,868.0	6.4	523.1	42	34.6	3,863.7	96	961.5	148
71	67	**ARCHER DANIELS MIDLAND** Decatur, Ill.[3]	5,774.6	8.2	265.4	83	15.2	3,862.1	97	2,367.7	58
72	69	**TEXTRON** Providence[6]	5,661.4	8.3	256.3‡	84	7.1	5,343.6	63	2,307.2	59
73	71	**COLGATE-PALMOLIVE** New York	5,647.5	13.3	54.0	277	(69.6)	3,227.7	110	941.1	151
74	75	**NCR** Dayton, Ohio	5,640.7	15.5	419.3	55	24.6	4,187.5	89	2,161.5	63
75	72	**TEXAS INSTRUMENTS** Dallas	5,594.5	12.5	308.5**	74	960.1	4,256.3	85	2,246.4	60
76	76	**BRISTOL-MYERS** New York	5,401.2	11.7	709.6	28	20.4	4,732.0	76	3,229.3	44
77	80	**GENERAL MILLS** Minneapolis[7]	5,208.3	13.6	222.0	104	21.0	2,280.4	157	730.4	192
78	78	**PPG INDUSTRIES** Pittsburgh	5,182.6	10.6	377.1	60	19.2	4,987.9	69	2,043.5	68
79	77	**MARTIN MARIETTA** Bethesda, Md.	5,165.1	8.7	230.6	99	14.0	2,794.1	131	907.7	158
80	91	**MERCK** Rahway, N.J.	5,061.3	22.6	906.4	22	34.1	5,680.0	60	2,116.7	65
81	56	**W.R. GRACE** New York	5,046.3¶	(25.9)	173.1	134	—	4,473.6	79	1,463.3	96
82	74	**AMERICAN HOME PRODUCTS** New York	5,028.3	2.1	845.1	23	8.5	4,608.4	77	2,529.7	56
83	84	**PFIZER** New York	4,919.8	9.9	690.2	29	4.6	6,922.6	51	3,882.4	35
84	81	**CPC INTERNATIONAL** Englewood Cliffs, N.J.	4,903.0	7.8	354.8	62	61.9	3,260.5	108	1,086.5	130
85	90	**KIMBERLY-CLARK** Dallas	4,884.7	13.5	325.2	70	20.7	3,885.7	95	1,571.9	89
86	82	**NORTH AMERICAN PHILIPS** New York[12]	4,846.9	7.0	(18.1)	445	—	3,102.3	117	1,073.6	133
87	92	**AMERADA HESS** New York	4,784.6	19.2	229.9	101	—	5,304.8	65	2,158.5	64
88	88	**H.J. HEINZ** Pittsburgh[13]	4,639.5	6.3	338.5	66	12.2	3,364.2	106	1,392.9	102
89	89	**BETHLEHEM STEEL** Bethlehem, Pa.	4,620.5	6.6	174.3**	132	—	4,774.8	74	1,208.4	121
90	86	**CHAMPION INTERNATIONAL** Stamford, Conn.	4,614.7	5.2	382.0	58	90.2	6,103.3	57	2,936.3	52
91	210	**HOECHST CELANESE** Somerville, N.J.[14]	4,596.0	178.6	169.0	136	347.1	5,388.0	62	3,103.0	47
92	85	**IC INDUSTRIES** Chicago	4,581.2¶	3.2	251.7	86	—	4,871.4	72	1,573.0	88
93	104	**QUAKER OATS** Chicago[3]	4,538.6	23.6	243.9	93	35.8	3,250.1	109	1,087.5	129
94	87	**CAMPBELL SOUP** Camden, N.J.[15]	4,490.4	2.6	247.3	92	10.8	3,090.0	118	1,736.1	77
95	149	**JAMES RIVER CORP. OF VIRGINIA** Richmond[13]	4,479.0	71.8	169.9	135	78.3	4,210.5	87	1,847.2	74
96	83	**LITTON INDUSTRIES** Beverly Hills, Calif.[15]	4,419.7	(2.2)	138.1	162	94.1	4,880.8	71	1,053.8	138
97	96	**ABBOTT LABORATORIES** North Chicago, Ill.	4,387.9	15.2	632.6	34	17.0	4,385.7	82	2,093.5	66
98	144	**TRIANGLE INDUSTRIES** New York	4,336.1	62.5	52.2	281	304.1	3,771.9	100	423.2	278
99	106	**BASF** Parsippany, N.J.[16]	4,333.5	18.9	130.7‡	168	25.0	2,557.5	148	918.5	155
100	99	**SMITHKLINE BECKMAN** Philadelphia	4,328.8	15.6	570.1	40	9.4	4,446.2	80	1,584.6	86

The definitions, explanations, and footnotes underlying the figures in this directory are on page D33.

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MARKET VALUE		PROFITS AS PERCENT OF						EARNINGS PER SHARE				TOTAL RETURN TO INVESTORS				INDUSTRY TABLE NUMBER	RANK
		SALES		ASSETS		STOCKHOLDERS' EQUITY			% change from 1986	1977-87 annual growth rate		1987		1977-87 annual average			
$ Millions	Rank	%	Rank	%	Rank	%	Rank	1987/$		%	Rank	%	Rank	%	Rank		
3,966.9	78	2.6	362	2.0	391	5.1	387	2.25‡	(24.0)	(2.1)	312	41.5	59	11.8	288	15	**51**
4,518.4	71	5.2	209	4.7	314	10.0§	332	3.68	27.1	4.0	251	15.4	153	12.0	283	9	**52**
4,561.2	69	5.8	183	11.0	63	24.1	57	6.12	20.0	12.8	109	1.5	264	18.1	178	7	**53**
14,335.7	17	12.0	36	11.0	62	28.4	37	2.43	0.4	10.6	147	3.5	246	17.5	191	3	**54**
5,900.8	48	5.7	188	5.2	287	11.2	303	5.63	1.4	4.2	247	12.2	174	17.1	203	5	**55**
364.1	372	6.6	152	8.8	124	—		4.24	—	—		53.8	32	(8.1)	393	15	**56**
1,287.4	195	1.5	397	1.4	404	13.2§	242	2.10	275.0	2.9	268	12.7	170	22.4	103	18	**57**
5,717.9	50	6.4	163	6.2	235	12.0§	280	3.18	66.5	3.3	264	5.7	232	7.6	341	9	**58**
3,244.3	93	3.4	326	2.9	363	18.6	128	1.76	(63.2)	(1.4)	309	2.6	254	15.7	227	5	**59**
1,905.1	152	1.9	381	3.3	357	12.5§	263	4.27	(30.6)	1.4	289	6.1	230	17.4	195	18	**60**
3,033.4	97	3.6	302	5.6	267	17.2	162	4.01	10.6	5.3	227	16.2	152	16.0	222	7	**61**
6,141.0	42	4.6	245	5.8	250	10.2	328	2.39	56.2	7.4	197	41.3	60	17.4	193	7	**62**
2,822.8	101	3.8	288	4.8	308	11.3	297	5.75	—	5.2	229	(6.2)	306	12.6	272	7	**63**
3,997.7	77	4.1	275	6.4	221	16.1	178	3.62	20.7	10.3	153	8.1	205	23.3	86	8	**64**
5,009.0	63	8.3	101	7.1	197	17.6§	152	4.60	44.7	12.1	123	9.6	193	23.4	81	25	**65**
6,000.0	45	5.3	205	4.3	330	8.9	350	1.14	(32.9)	7.2	200	20.4	130	10.8	306	19	**66**
7,749.8	32	7.6	120	9.6	101	17.3	158	2.00	6.8	9.3	165	27.6	104	16.3	219	7	**67**
3,285.5	92	3.0	344	4.7	312	13.2	240	2.10	(11.9)	8.9	172	6.5	224	18.0	181	8	**68**
1,393.6	189	1.6	396	3.0	361	9.9	333	2.01	125.8	2.3	279	(33.0)	422	16.6	217	1	**69**
5,173.9	62	8.9	82	13.5	30	54.4	3	7.23	42.9	18.4	39	(8.3)	319	20.7	138	8	**70**
3,509.7	87	4.6	243	6.9	206	11.2	301	1.54	13.1	11.1	140	22.0	125	16.8	210	8	**71**
2,127.3	139	4.5	249	4.8	309	11.1	306	2.92‡	0.9	4.8	238	(26.0)	394	11.5	292	1	**72**
3,004.1	98	1.0	409	1.7	397	5.7	382	0.78	(69.0)	(9.3)	335	(0.9)	279	12.2	281	23	**73**
5,593.8	53	7.4	126	10.0	81	19.4	108	4.51	31.9	12.9	105	45.5	50	23.3	85	6	**74**
4,265.0	75	5.5	196	7.2	189	13.7	229	3.59**	1,416.7	7.7	191	43.4	55	10.6	308	7	**75**
12,584.0	23	13.1	29	15.0	23	22.0	73	2.47	19.6	13.8	91	3.8	244	21.3	124	19	**76**
4,422.6	73	4.3	270	9.7	96	30.4	33	2.50	21.7	7.8	189	18.4	140	18.6	169	8	**77**
4,312.8	74	7.3	131	7.6	177	18.5	134	3.19	19.9	15.9	64	(6.5)	308	23.0	89	4	**78**
2,423.7	121	4.5	254	8.3	145	25.4	48	4.25	15.8	12.8	108	11.2	180	24.3	71	1	**79**
20,783.3	8	17.9	10	16.0	18	42.8	7	6.68	37.7	13.2	100	29.9	95	22.5	99	19	**80**
2,310.8	128	3.4	319	3.9	342	11.8	286	2.03	—	0.9	291	3.5	247	12.4	274	5	**81**
11,617.6	24	16.8	12	18.3	9	33.4	25	5.73	10.6	11.4	133	(1.4)	284	15.8	225	19	**82**
8,936.2	30	14.0	27	10.0	85	17.8	147	4.08	4.6	12.6	113	(21.4)	378	16.8	212	19	**83**
3,784.1	81	7.2	134	10.9	65	32.7	27	4.34	88.7	12.0	125	5.1	234	19.3	165	8	**84**
4,601.5	68	6.7	150	8.4	138	20.7	86	3.73	27.1	10.3	154	28.6	101	22.7	93	9	**85**
N.A.		—		—		—		N.A.	—	—		—		—		7	**86**
2,411.4	124	4.8	232	4.3	331	10.6	315	2.73	—	2.5	275	6.8	219	10.2	311	18	**87**
5,456.8	55	7.3	130	10.1	79	24.3	54	2.47	12.3	15.4	72	2.1	258	26.1	54	8	**88**
1,390.5	190	3.8	292	3.7	349	14.4	211	2.77**	—	—		168.0	4	1.6	378	15	**89**
3,405.9	89	8.3	99	6.3	231	13.0	247	4.03	93.8	4.0	253	14.1	160	9.9	317	9	**90**
N.A.		3.7	298	3.1	359	5.4	385	N.A.	—	—		—		—		5	**91**
3,753.1	82	5.5	198	5.2	286	16.0	180	2.23	—	7.0	202	46.8	46	24.7	64	8	**92**
3,675.3	83	5.4	202	7.5	160	22.4	70	3.10	42.5	15.2	76	6.0	231	26.6	50	8	**93**
3,656.4	84	5.5	197	8.0	152	14.2	217	3.81	10.4	8.8	173	0.1	272	17.9	182	8	**94**
2,037.2	146	3.8	290	4.0	337	9.2§	344	2.03	14.7	20.2	28	(29.0)	409	27.1	44	9	**95**
2,172.8	136	3.1	338	2.8	367	13.1	244	5.16	104.8	15.6	66	(2.5)	292	20.8	137	7	**96**
11,024.8	26	14.4	23	14.4	27	30.2	35	2.78	19.8	18.8	35	7.6	213	24.1	74	19	**97**
771.2	281	1.2	405	1.4	405	12.3	268	1.79	297.8	—		6.3	224	35.2	9	14	**98**
N.A.		3.0	342	5.1	294	14.2	218	N.A.	—	—		—		—		5	**99**
7,354.0	34	13.2	28	12.8	37	36.0	17	4.50	32.7	19.7	31	5.0	236	18.6	170	19	**100**

THE FORTUNE 500

LARGEST U.S. INDUSTRIAL CORPORATIONS

RANK 1987	RANK 1986	COMPANY	SALES $ Millions	SALES % change from 1986	PROFITS $ Millions	PROFITS Rank	PROFITS % change from 1986	ASSETS $ Millions	ASSETS Rank	STOCKHOLDERS' EQUITY $ Millions	STOCKHOLDERS' EQUITY Rank
101	109	**REYNOLDS METALS** Richmond	4,283.8	17.7	219.5	105	14.4	4,314.0	84	1,599.6	84
102	125	**MEAD** Dayton	4,208.8	30.8	217.7	109	499.7	2,917.3	125	1,246.0	116
103	117	**BAYER USA** Pittsburgh[17]	4,198.9	23.1	123.1	171	31.3	3,127.0	114	1,061.8	137
104	98	**TIME INC.** New York	4,193.5	11.5	249.8	88	(33.6)	4,423.7	81	1,247.6	114
105	93	**WHIRLPOOL** Benton Harbor, Mich.	4,179.0	4.2	191.9	125	(3.9)	2,417.5	154	1,303.8	112
106	94	**AMERICAN CYANAMID** Wayne, N.J.	4,166.1	9.2	275.6	79	36.1	4,129.0	91	1,873.0	72
107	103	**DANA** Toledo	4,142.1	12.1	144.4	158	68.2	2,802.0	130	879.2	162
108	111	**DEERE** Moline, Ill.[11]	4,134.5	17.6	(99.0)	469	—	4,759.9	75	1,920.1	70
109	115	**SCOTT PAPER** Philadelphia	4,122.0	19.9	233.8	97	25.4	4,480.5	78	1,574.3	87
110	95	**EATON** Cleveland	4,053.5¶	6.3	201.2	116	46.2	3,026.2	121	1,076.1	131
111	101	**ELI LILLY** Indianapolis	4,049.3¶	8.8	643.7	32	15.3	5,254.9	67	3,042.6	48
112	102	**FIRESTONE TIRE & RUBBER** Chicago[11]	3,867.0	4.2	145.0**	156	70.6	2,921.0	124	1,179.0	122
113	100	**BOISE CASCADE** Boise, Idaho	3,820.8	2.2	183.0	127	80.2	3,374.8	105	1,559.5	90
114	120	**KELLOGG** Battle Creek, Mich.	3,793.0	13.5	395.9	57	24.1	2,681.0	139	1,211.0	120
115	97	**HANSON INDUSTRIES N. AMERICA** Iselin, N.J.[5,18]	3,769.1	0.0	229.1‡	102	122.3	2,933.7	122	747.7	187
116	108	**OWENS-ILLINOIS** Toledo	3,714.8¶,[10]	2.0	N.A.		—	N.A.		N.A.	
117	141	**SWIFT INDEPENDENT** Dallas[11]	3,692.1	33.6	(18.4)	447	—	362.8	457	(5.7)	479
118	116	**COOPER INDUSTRIES** Houston	3,585.8	4.4	173.8	133	17.7	3,800.4	99	1,592.9	85
119	110	**BORG-WARNER** Chicago	3,553.7[10]	(1.9)	N.A.		—	4,964.9	70	136.1	434
120	118	**NAVISTAR INTERNATIONAL** Chicago[11]	3,529.7	5.2	33.4‡	330	1,820.6	1,902.2	182	643.2	209
121	127	**WARNER-LAMBERT** Morris Plains, N.J.	3,484.7	12.3	295.8	77	(4.4)	2,475.9	151	874.4	163
122	123	**INLAND STEEL INDUSTRIES** Chicago	3,453.2	5.4	145.0**	157	652.6	2,651.4	141	1,391.5	103
123	121	**AMERICAN STANDARD** New York	3,438.9	3.4	127.1	169	(32.5)	2,398.2	155	850.6	167
124	232	**AMAX** Greenwich, Conn.[19]	3,434.3	137.9	51.2‡	285	258.0	3,969.3	94	1,305.6	111
125	119	**CONTROL DATA** Minneapolis	3,366.5	0.6	19.3‡	389	—	2,638.6	142	1,047.5	140
126	•	**COCA-COLA ENTERPRISES** Atlanta	3,329.1	70.6	88.4	201	218.0	4,250.0	86	1,526.1	93
127	114	**GRUMMAN** Bethpage, N.Y.	3,325.1	(3.3)	35.6	323	(54.7)	2,254.6	158	727.5	194
128	151	**COMBUSTION ENGINEERING** Stamford, Conn.	3,301.0	29.4	56.6	267	11.2	2,703.7	137	862.5	164
129	135	**AVON PRODUCTS** New York	3,292.7¶	14.2	159.1	142	0.3	2,559.2	147	758.6	184
130	140	**BURLINGTON HOLDINGS** New York[5]	3,279.3[10]	18.0	N.A.		—	3,491.6	104	99.3	455
131	122	**UNITED BRANDS** Cincinnati	3,268.0	(1.2)	59.4	258	10.3	1,116.0	252	418.5	279
132	112	**AGWAY** DeWitt, N.Y.[3]	3,264.7	(7.0)	N.A.		—	1,421.6	224	326.7	319
133	175	**STONE CONTAINER** Chicago[20]	3,232.9	59.1	161.3	140	355.5	2,286.1	156	740.3	188
134	124	**TELEDYNE** Los Angeles	3,216.8	(0.8)	377.2	59	58.3	3,135.0	113	1,976.0	69
135	137	**GILLETTE** Boston	3,166.8	12.4	229.9	100	1,355.1	2,731.2	135	599.4	225
136	133	**TIMES MIRROR** Los Angeles	3,154.6	8.0	266.5	82	(34.7)	3,122.1	116	1,454.2	97
137	131	**FMC** Chicago	3,139.1	4.5	180.5	130	18.3	2,595.1	144	(343.2)	487
138	105	**DRESSER INDUSTRIES** Dallas[11]	3,119.7	(14.8)	48.9**	290	409.4	2,882.3	127	1,550.0	91
139	128	**GENCORP** Fairlawn, Ohio[21]	3,101.0¶	0.1	475.0	47	265.4	1,108.0	254	(97.0)	484
140	202	**BRUNSW[illegible]K** Skokie, Ill.	3,086.4	79.7	168.8	137	53.0	1,896.3	184	848.9	169
141	138	**GANNETT** Arlington, Va.	3,079.4	9.9	319.4	71	15.6	3,510.3	102	1,609.4	82
142	136	**USG** Chicago	3,046.4	6.2	204.3	114	(9.4)	2,094.8	164	609.8	221
143	129	**ARMCO** Parsippany, N.J.	2,927.2	(5.1)	117.6**	174	—	2,786.7	132	738.6	189
144	107	**OWENS-CORNING FIBERGLAS** Toledo	2,891.1	(20.7)	200.1‡	119	1,179.4	1,590.1	207	(809.9)	489
145	155	**LEVER BROTHERS** New York[22]	2,856.4	15.4	7.0	417	—	1,011.4	274	163.4	416
146	146	**WANG LABORATORIES** Lowell, Mass.[3]	2,836.7	7.3	(70.7)	464	—	2,812.0	129	1,486.2	95
147	143	**FRUEHAUF** Detroit	2,784.7¶	3.9	(41.5)	457	—	1,727.1	192	(28.3)	481
148	160	**CUMMINS ENGINE** Columbus, Ind.	2,767.4	20.1	13.9	404	—	2,019.4	172	807.3	178
149	157	**SCHERING-PLOUGH** Madison, N.J.	2,699.3	12.5	316.4	72	19.0	3,179.5	111	1,443.4	99
150	148	**HERCULES** Wilmington, Del.	2,693.0	3.0	820.7	25	262.0	3,492.1	103	2,189.9	62

The definitions, explanations, and footnotes underlying the figures in this directory are on page D33.

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MARKET VALUE		PROFITS AS PERCENT OF SALES		ASSETS		STOCKHOLDERS' EQUITY		EARNINGS PER SHARE				TOTAL RETURN TO INVESTORS 1987		1977-87 annual average		INDUSTRY TABLE NUMBER	RANK
$ Millions	Rank	%	Rank	%	Rank	%	Rank	1987/$	% change from 1986	1977-87 annual growth rate %	Rank	%	Rank	%	Rank		
2,417.6	122	5.1	216	5.1	296	13.7	230	4.33	5.9	6.5	210	142.1	8	16.6	216	15	101
2,465.1	115	5.2	211	7.5	182	17.5	155	3.45	494.8	5.3	226	26.5	110	17.8	190	9	102
N.A.		2.9	345	3.9	339	11.6	291	N.A.	—	—		—		—		5	103
5,267.2	60	6.0	176	5.6	262	20.0	98	4.18	(29.7)	6.5	208	18.8	138	20.5	144	20	104
1,930.1	151	4.6	244	7.9	156	14.7	205	2.68	(0.7)	5.8	217	(25.6)	392	13.6	259	7	105
4,559.4	70	6.6	153	6.7	212	14.7	206	3.02	38.5	7.5	195	8.2	204	17.0	206	5	106
1,549.7	176	3.5	308	5.2	288	16.4	172	3.30	96.4	3.2	265	1.3	265	13.3	264	17	107
3,001.0	99	—		—		—		(1.46)	—	—		53.2	33	7.6	342	11	108
2,692.6	104	5.7	190	5.2	284	14.9	200	6.11	23.2	9.1	169	14.5	159	22.5	100	9	109
1,963.5	147	5.0	220	6.6	213	18.7	127	7.16	66.9	5.8	218	9.8	191	17.2	198	7	110
11,254.0	25	15.9	17	12.2	47	21.2	79	4.41	10.0	11.0	141	7.5	215	19.6	158	19	111
2,207.1	133	3.7	295	5.0	302	12.3	273	3.96**	83.3	7.5	196	16.3	150	12.3	278	21	112
2,143.2	138	4.8	234	5.4	273	11.7	289	3.70	85.7	3.7	256	16.8	147	15.5	231	9	113
6,236.8	41	10.4	54	14.8	25	32.7	26	3.20	24.0	13.5	95	3.4	248	21.7	117	8	114
N.A.		6.1	173	7.8	167	30.6	31	N.A.	—	—		—		—		5	115
N.A.		—		—		—		N.A.	—	—		—		—		4	116
N.A.		—		—		—		(22,739.00)	—	—		—		—		8	117
2,903.4	100	4.8	228	4.6	319	10.9	310	3.47	14.1	3.8	255	38.2	72	13.4	263	7	118
N.A.		—		—		—		N.A.	—	—		—		—		5	119
1,449.3	188	0.9	410	1.8	395	5.2	386	0.03‡	—	(42.0)	359	(10.5)	332	(16.0)	398	17	120
4,904.0	64	8.5	91	11.9	52	33.8	22	4.15	(0.7)	5.8	219	17.9	143	15.3	233	19	121
1,080.1	226	4.2	271	5.5	271	10.4	321	4.14**	935.0	(0.2)	301	60.9	25	1.8	377	15	122
2,326.1	127	3.7	297	5.3	280	14.9	197	3.99	(22.5)	2.2	280	(11.7)	337	12.8	269	11	123
1,838.7	160	1.5	399	1.3	409	3.9	400	0.53‡	960.0	(6.9)	329	64.9	19	0.6	383	15	124
1,141.8	217	0.6	420	0.7	421	1.8	415	0.45‡	—	(13.1)	347	(18.0)	367	5.4	358	6	125
2,184.2	135	2.7	360	2.1	390	5.8	381	0.63	75.0	—		0.2	271	—		3	126
673.6	295	1.1	408	1.6	400	4.9§	390	0.94	(59.5)	(7.4)	331	(26.9)	399	12.5	273	1	127
1,331.6	193	1.7	388	2.1	388	6.6	374	1.54	0.7	(3.0)	319	(0.0)	274	9.7	321	7	128
1,663.6	169	4.8	230	6.2	234	21.0	81	2.26	1.3	(3.7)	324	2.1	259	1.2	379	23	129
N.A.		—		—		—		N.A.	—	—		—		—		24	130
720.0	288	1.8	387	5.3	277	14.2	219	3.86	14.2	22.7	20	38.8	69	21.5	121	8	131
N.A.		—		—		—		N.A.	—	—		—		—		18	132
1,753.4	163	5.0	218	7.1	200	21.8	75	2.81	116.2	14.7	83	27.8	103	31.5	19	9	133
3,888.4	80	11.7	40	12.0	50	19.1	117	32.25	58.5	16.1	60	2.1	260	28.2	33	7	134
4,503.7	72	7.3	133	8.4	135	38.4	13	2.00	1,500.0	4.2	246	17.9	142	22.7	95	14	135
4,788.5	66	8.4	93	8.5	131	18.3	137	2.06	(34.7)	11.5	130	15.2	154	22.7	94	20	136
996.0	240	5.8	186	7.0	204	—		4.29	161.6	1.8	283	31.1	87	27.7	35	5	137
2,208.1	132	1.6	395	1.7	396	3.2	404	0.65**	441.7	(12.2)	343	37.4	76	4.8	363	11	138
690.1	291	15.3	20	42.9	1	—		9.87	408.8	21.4	24	(8.2)	318	19.0	167	21	139
1,877.0	156	5.5	199	8.9	123	19.9	100	1.90	44.5	23.3	18	(11.7)	338	28.2	31	11	140
6,053.5	43	10.4	57	9.1	117	19.8	101	1.98	15.8	13.1	103	9.4	194	20.1	150	20	141
1,855.2	158	6.7	149	9.8	93	33.5	24	3.96	11.9	16.6	55	(20.5)	376	24.7	65	4	142
1,012.1	238	4.0	279	4.2	333	15.9	183	1.38**	—	(5.9)	328	119.5	10	(1.6)	386	15	143
804.8	270	6.9	142	12.6	42	—		4.81‡	881.6	2.5	274	19.1	137	16.9	209	4	144
N.A.		0.2	429	0.7	423	4.3	396	N.A.	—	—		—		—		23	145
2,093.7	141	—		—		—		(0.44)	—	—		0.0	273	20.8	134	6	146
17.5	445	—		—		—		(5.97)	—	—		(43.8)	427	—		17	147
623.1	307	0.5	422	0.7	424	1.7	416	0.55	—	(23.7)	357	(27.4)	404	6.5	347	11	148
5,931.4	47	11.7	41	10.0	87	21.9	74	2.73	25.8	5.9	216	21.5	127	16.7	215	19	149
2,433.8	118	30.5	3	23.5	6	37.5	15	14.74	266.7	26.9	13	(4.1)	297	17.1	200	5	150

THE FORTUNE 500
LARGEST U.S. INDUSTRIAL CORPORATIONS

RANK 1987	RANK 1986	COMPANY	SALES $ Millions	SALES % change from 1986	PROFITS $ Millions	PROFITS Rank	PROFITS % change from 1986	ASSETS $ Millions	ASSETS Rank	STOCKHOLDERS' EQUITY $ Millions	STOCKHOLDERS' EQUITY Rank
151	147	**JOHNSON CONTROLS** Milwaukee[5]	2,676.8	1.4	89.6	199	(6.6)	1,739.1	191	770.4	182
152	190	**APPLE COMPUTER** Cupertino, Calif.[5]	2,661.1	39.9	217.5	110	41.3	1,477.9	218	836.5	173
153	139	**INGERSOLL-RAND** Woodcliff Lake, N.J.	2,647.9	(5.4)	117.7	173	25.2	2,248.2	160	1,233.8	117
154	171	**QUANTUM CHEMICAL** New York[23]	2,642.4*	26.2	251.6	87	232.8	2,581.2	146	1,045.4	141
155	154	**INTERCO** St. Louis[9]	2,613.7	4.1	98.6	190	6.8	1,720.7	193	1,148.9	125
156	152	**KERR-MCGEE** Oklahoma City	2,608.0	2.9	81.0	214	—	3,071.0	119	1,363.0	106
157	174	**GREAT NORTHERN NEKOOSA** Stamford, Conn.	2,589.0	27.0	200.6	118	135.2	3,538.5	101	1,220.3	118
158	142	**FARMLAND INDUSTRIES** Kansas City, Mo.[24]	2,580.5	(4.1)	N.A.		—	1,067.7	262	364.4	296
159	223	**VF** Wyomissing, Pa.	2,573.8	66.6	179.7	131	38.9	1,925.7	181	980.6	147
160	162	**UPJOHN** Kalamazoo, Mich.	2,521.0	10.6	305.0	76	20.7	3,043.1	120	1,673.5	78
161	182	**AMERICAN PETROFINA** Dallas[25]	2,484.0	26.7	83.3	210	—	1,835.9	186	731.3	191
162	164	**R.R. DONNELLEY & SONS** Chicago	2,482.9	11.2	218.2	108	37.9	2,086.4	165	1,155.1	124
163	161	**ENGELHARD** Edison, N.J.	2,479.2	8.3	69.8	236	31.1	1,216.3	241	730.1	193
164	170	**EMHART** Farmington, Conn.	2,454.5	17.2	106.5	185	—	2,029.3	171	838.4	172
165	168	**HERSHEY FOODS** Hershey, Pa.	2,433.8	12.2	148.2	150	11.6	1,645.2	200	832.4	174
166	198	**PACCAR** Bellevue, Wash.	2,423.5	35.0	112.5	179	107.2	1,300.0	237	801.3	179
167	209	**REVLON GROUP** New York	2,398.3[10]	48.8	N.A.		—	N.A.		N.A.	
168	159	**JIM WALTER** Tampa[24]	2,386.3	2.8	166.1	138	19.9	2,931.7	123	1,249.2	113
169	187	**ARMSTRONG WORLD INDUSTRIES** Lancaster, Pa.	2,365.0	23.2	150.4	147	22.9	1,602.5	206	913.8	157
170	191	**ZENITH ELECTRONICS** Glenview, Ill.	2,362.7	24.9	(19.1)	448	—	1,373.0	228	478.2	259
171	185	**AMP** Harrisburg, Pa.	2,317.8	19.9	249.7	89	51.9	2,082.1	166	1,348.6	107
172	181	**GEO. A. HORMEL** Austin, Minn.[11]	2,314.1	18.1	45.9	298	17.6	698.0	343	373.1	295
173	173	**UNION CAMP** Wayne, N.J.	2,307.6	12.8	207.5	112	59.7	2,896.9	126	1,452.0	98
174	177	**STERLING DRUG** New York[26]	2,300.9	15.6	197.0	122	14.9	N.A.		N.A.	
175	178	**PITNEY BOWES** Stamford, Conn.	2,250.5	13.3	199.4	121	18.8	2,431.7	153	1,038.2	143
176	165	**KAISERTECH** Oakland[27]	2,226.6¶	(0.3)	(362.0)	476	—	2,591.9	145	815.9	177
177	172	**ROHM & HAAS** Philadelphia	2,203.0	6.6	195.5	123	41.7	1,954.0	178	1,053.0	139
178	183	**PREMARK INTERNATIONAL** Deerfield, Ill.	2,197.3	12.2	71.5	232	—	1,585.7	209	663.1	203
179	167	**LAND O'LAKES** Arden Hills, Minn.	2,188.5	(1.2)	N.A.		—	688.3	347	237.4	367
180	150	**B.F. GOODRICH** Akron	2,168.0	(15.1)	105.0**	188	221.1	1,938.5	180	1,005.3	145
181	176	**TRIBUNE** Chicago	2,160.0	6.4	141.5	159	(51.7)	2,758.4	134	1,094.9	128
182	153	**SQUIBB** Princeton, N.J.	2,156.5	(14.8)	358.4	61	(9.6)	2,782.4	133	1,525.5	94
183	179	**AIR PRODUCTS & CHEMICALS** Allentown, Pa.[5]	2,140.4	8.0	155.6	144	3,185.9	2,701.7	138	1,146.6	126
184	•	**UNIVERSAL** Richmond[3,28]	2,103.8	56.2	56.0	269	18.8	943.4	285	325.7	321
185	163	**SHERWIN-WILLIAMS** Cleveland	2,094.8¶	(7.0)	96.6	192	(8.8)	1,140.0	250	549.7	239
186	193	**CORNING GLASS WORKS** Corning, N.Y.	2,083.7	12.3	207.5	111	17.2	2,658.7	140	1,535.7	92
187	166	**HARRIS** Melbourne, Fla.[3]	2,079.0	(6.2)	84.5	209	41.8	1,796.4	189	984.3	146
188	189	**KNIGHT-RIDDER** Miami	2,072.6	8.5	155.2	145	10.8	1,985.4	173	901.5	160
189	195	**WEST POINT-PEPPERELL** West Point, Ga.[5]	2,067.4¶	14.0	71.6	231	31.4	1,563.4	210	786.3	181
190	188	**MANVILLE** Denver	2,063.2	7.4	72.6‡	228	(10.6)	2,715.9	136	1,114.5	127
191	•	**KNOLL INTERNATIONAL HOLDINGS** New York	2,036.7	77.7	(15.7)	442	—	1,796.5	188	51.0	469
192	197	**JOSEPH E. SEAGRAM & SONS** New York[29,30]	2,028.9*	12.1	337.6	67	36.7	6,301.4	55	3,730.2	37
193	230	**MASCO** Taylor, Mich.	2,023.3	39.3	218.8	107	7.6	2,850.1	128	1,370.9	105
194	184	**MORTON THIOKOL** Chicago[3]	1,987.3	1.9	138.0	163	3.8	1,666.0	198	940.0	152
195	199	**BLACK & DECKER** Towson, Md.[5]	1,934.8	8.0	55.6	272	781.4	1,668.0	197	649.1	206
196	204	**OLIN** Stamford, Conn.	1,930.0	13.0	78.0	218	3.7	1,685.0	196	700.0	199
197	220	**BAKER HUGHES** Houston[5,31]	1,923.6	23.5	(254.8)	475	—	2,188.6	163	915.5	156
198	224	**LOUISIANA-PACIFIC** Portland, Ore.	1,921.6	27.6	125.0	170	(33.5)	1,971.0	176	1,044.2	142
199	194	**MAYTAG** Newton, Iowa	1,908.8	3.8	152.7	146	37.3	854.9	308	415.1	280
200	256	**INTEL** Santa Clara, Calif.	1,907.1	50.8	248.1**	91	—	2,597.2	143	1,306.4	109

The definitions, explanations, and footnotes underlying the figures in this directory are on page D33.

MARKET VALUE		PROFITS AS PERCENT OF						EARNINGS PER SHARE				TOTAL RETURN TO INVESTORS				INDUSTRY TABLE NUMBER	RANK
		SALES		ASSETS		STOCKHOLDERS' EQUITY			% change from 1986	1977-87 annual growth rate		1987		1977-87 annual average			
$ Millions	Rank	%	Rank	%	Rank	%	Rank	1987/$		%	Rank	%	Rank	%	Rank		
1,233.1	209	3.3	329	5.2	289	11.6	290	2.20	(6.6)	4.8	240	(7.6)	314	9.7	322	7	151
5,674.0	51	8.2	102	14.7	26	26.0	44	1.65	38.1	—		108.4	12	—		6	152
2,049.3	144	4.4	259	5.2	283	9.5	342	2.17	21.1	(0.7)	304	64.4	21	10.2	314	11	153
2,628.3	107	9.5	70	9.7	95	24.1	58	7.75	250.7	9.0	171	75.4	17	22.0	113	5	154
1,554.0	175	3.8	291	5.7	255	8.6	354	3.13	7.2	1.4	288	(9.3)	322	9.2	325	2	155
1,749.1	165	3.1	339	2.6	374	5.9	379	1.67	—	(3.2)	320	32.9	83	7.9	335	18	156
2,401.2	125	7.7	112	5.7	259	16.4	171	3.68	130.0	8.4	182	49.3	39	22.8	91	9	157
N.A.		—		—		—		N.A.	—	—		—		—		18	158
2,188.0	134	7.0	139	9.3	110	18.3	138	2.65	29.3	22.1	21	(18.9)	372	33.1	15	2	159
5,986.0	46	12.1	35	10.0	80	18.2	139	1.63	20.4	12.2	118	(2.1)	290	21.4	122	19	160
860.8	264	3.4	328	4.5	321	11.4	292	6.32	—	5.6	223	36.1	78	12.1	282	18	161
2,779.9	103	8.8	89	10.5	69	18.9	123	2.80	38.3	15.5	67	8.7	203	22.0	110	20	162
836.6	266	2.8	353	5.7	254	9.6	341	1.60	22.1	—		8.8	202	—		5	163
1,380.1	191	4.3	264	5.2	282	12.7	257	1.70	—	3.6	261	34.7	81	17.5	192	14	164
2,423.8	120	6.1	171	9.0	120	17.8	146	1.64	15.5	12.6	112	1.6	263	27.5	37	8	165
1,255.7	202	4.6	238	8.7	129	14.0	223	6.26	107.3	4.2	248	25.2	113	22.6	98	17	166
N.A.		—		—		—		N.A.	—	—		—		—		23	167
N.A.		7.0	140	5.7	260	13.3	238	4.09	10.2	5.8	220	62.1	24	19.4	162	4	168
1,662.9	170	6.4	164	9.4	107	16.5	170	3.18	25.2	15.2	77	10.7	182	19.6	160	24	169
456.8	344	—		—		—		(0.78)	—	—		(32.6)	420	2.6	376	7	170
5,526.2	54	10.8	52	12.0	51	18.5	131	2.31	52.0	12.9	106	31.6	85	20.3	147	7	171
970.3	246	2.0	380	6.6	216	12.3	272	1.20	18.2	7.7	193	26.7	108	26.0	57	8	172
2,519.0	112	9.0	79	7.2	193	14.3	215	2.83	60.2	6.0	214	9.6	192	14.1	252	9	173
N.A.		8.6	90	—		—		3.42	17.5	9.1	167	22.3	122	19.0	166	19	174
3,379.1	91	8.9	85	8.2	148	19.2	115	2.53	19.3	13.7	92	6.3	225	27.1	41	6	175
532.4	322	—		—		—		(8.11)	—	—		(19.8)	373	0.6	382	15	176
2,235.6	131	8.9	84	10.0	82	18.6	129	2.85	41.8	17.0	50	(7.2)	313	23.7	78	5	177
990.0	242	3.3	333	4.5	322	10.8	313	2.08	—	—		15.2	155	—		21	178
N.A.		—		—		—		N.A.	—	—		—		—		8	179
1,238.0	206	4.8	229	5.4	274	10.4§	320	4.06**	207.6	0.2	297	(2.0)	288	12.9	268	5	180
3,129.3	95	6.6	158	5.1	291	12.9	248	1.80	(50.4)	—		46.1	47	—		20	181
6,929.0	37	16.6	14	12.9	36	23.5	64	3.42	(7.2)	10.6	146	11.7	176	21.7	118	19	182
2,529.6	111	7.3	132	5.8	253	13.6	234	2.76	3,350.0	8.7	175	18.5	139	14.7	240	5	183
503.0	330	2.7	359	5.9	245	17.2	161	3.25	18.6	12.1	124	19.2	136	19.7	157	25	184
1,251.6	204	4.6	241	8.5	133	17.6	153	2.15	(6.9)	—		(10.1)	329	24.5	66	5	185
2,438.1	117	10.0	61	7.8	168	13.5	236	4.49	11.1	5.6	224	(12.9)	348	9.5	323	4	186
1,180.7	212	4.1	276	4.7	313	8.6	355	2.05	38.5	2.3	278	(10.2)	330	3.7	372	7	187
2,424.5	119	7.5	124	7.8	166	17.2	159	2.65	10.0	10.9	143	(12.7)	346	18.2	175	20	188
963.5	250	3.5	314	4.6	318	9.1	345	2.38	16.4	5.5	225	4.3	240	18.2	176	24	189
60.0	440	3.5	305	2.7	[illegible]	6.5	375	1.98‡	(15.4)	(8.4)	332	20.0	133	(20.4)	399	4	190
N.A.		—		—		—		(0.79)	—	—		—		—		21	191
N.A.		16.6	13	5.4	276	9.1	348	N.A.	—	—		—		—		3	192
3,447.3	88	10.8	51	7.7	172	16.0	182	1.65	5.8	13.3	99	(24.5)	388	17.9	183	10	193
2,147.9	137	6.9	141	8.3	142	14.7	208	2.90	3.6	13.2	101	8.9	201	20.2	148	5	194
1,074.8	227	2.9	349	3.3	353	8.6	356	0.95	763.6	(2.6)	317	18.4	141	5.0	362	11	195
1,135.9	219	4.0	278	4.6	316	11.1	305	3.38	0.6	0.4	295	6.1	228	14.8	239	5	196
2,044.9	145	—		—		—		(2.22)	—	—		17.8	144	4.5	367	11	197
1,088.3	225	6.5	159	6.3	227	12.0	283	3.27	(34.1)	6.8	205	(7.8)	316	14.2	249	9	198
1,797.6	162	8.0	107	17.9	11	36.8	16	1.91	48.6	11.5	131	(1.5)	285	19.7	155	7	199
5,302.5	58	13.0	30	9.6	103	19.0	121	1.38**	—	17.9	43	89.3	14	20.8	136	7	200

THE FORTUNE 500
LARGEST U.S. INDUSTRIAL CORPORATIONS

RANK 1987	RANK 1986	COMPANY	SALES $ Millions	SALES % change from 1986	PROFITS $ Millions	PROFITS Rank	PROFITS % change from 1986	ASSETS $ Millions	ASSETS Rank	STOCKHOLDERS' EQUITY $ Millions	STOCKHOLDERS' EQUITY Rank
201	196	**WESTVACO** New York[11]	1,903.6	5.1	146.2	154	35.2	2,211.0	161	1,178.4	123
202	169	**SINGER** Stamford, Conn.	1,902.7	(9.2)	26.4**	352	(68.0)	1,589.4	208	633.2	212
203	201	**PARKER HANNIFIN** Cleveland[3]	1,876.6	8.5	85.2	207	(3.4)	1,425.7	223	751.6	185
204	227	**NATIONAL SEMICONDUCTOR** Santa Clara, Calif.[7]	1,867.9	26.4	(24.6)**	452	—	1,499.4	213	891.1	161
205	203	**MACK TRUCKS** Allentown, Pa.	1,857.7	8.5	4.1	423	—	1,011.1	275	482.2	258
206	200	**PENNZOIL** Houston	1,786.5	0.2	44.3	302	(2.6)	3,304.7	107	621.3	216
207	226	**TYSON FOODS** Springdale, Ark.[5]	1,786.0	18.8	67.8	240	34.7	806.8	316	269.5	352
208	211	**POLAROID** Cambridge, Mass.	1,763.9	8.3	116.1	176	12.2	1,624.9	203	1,073.7	132
209	221	**STANLEY WORKS** New Britain, Conn.	1,763.1	13.8	86.6	205	10.1	1,387.5	227	625.6	214
210	222	**FORT HOWARD** Green Bay, Wis.	1,757.7	13.5	157.7	143	7.8	2,196.2	162	1,305.9	110
211	217	**MCGRAW-HILL** New York	1,751.2	11.1	164.8	139	7.0	1,637.6	201	825.3	176
212	215	**ETHYL** Richmond[6]	1,720.3	8.9	193.3	124	8.8	1,981.0	174	957.1	149
213	212	**CROWN CORK & SEAL** Philadelphia	1,717.9	6.1	88.3	202	11.2	1,058.3	263	645.6	208
214	316	**ILLINOIS TOOL WORKS** Chicago	1,698.4	76.7	106.2	186	33.4	1,284.9	239	608.5	222
215	219	**NEW YORK TIMES** New York	1,689.6	8.0	160.3	141	21.3	1,711.6	194	825.8	175
216	231	**TRINOVA** Maumee, Ohio	1,681.7	16.2	75.1	223	(38.7)	1,320.3	234	631.3	213
217	225	**SPRINGS INDUSTRIES** Fort Mill, S.C.	1,661.1	10.4	55.7	271	71.0	1,083.7	255	505.0	250
218	213	**COLT INDUSTRIES** New York	1,641.6	1.6	75.0	225	(15.9)	1,020.6	273	(968.9)	490
219	205	**INT'L MINERALS & CHEMICAL** Northbrook, Ill.[3]	1 637.5	(3.8)	21.1‡	380	—	2,434.2	152	1,069.0	135
220	208	**J.P. STEVENS** New York[11]	1,614.7	(3.4)	56.0	268	4.3	968.4	281	498.7	252
221	341	**PHELPS DODGE** Phoenix	1,611.7	90.5	205.7**	113	235.0	2,249.8	159	1,337.8	108
222	214	**GENERAL SIGNAL** Stamford, Conn.	1,603.0	1.2	69.4	239	(7.0)	1,397.4	226	907.2	159
223	244	**TEMPLE-INLAND** Diboll, Tex.	1,602.7	20.6	141.4	160	75.0	1,798.0	187	927.5	153
224	206	**KOPPERS** Pittsburgh	1,591.0	(6.2)	10.8	411	(86.0)	1,074.9	258	430.9	274
225	234	**DOVER** New York	1,585.5	10.1	111.7	180	33.2	1,150.2	248	671.9	202
226	248	**BECTON DICKINSON** Franklin Lakes, N.J.[5]	1,582.0	20.6	148.2	151	21.5	1,891.5	185	861.3	165
227	218	**MAPCO** Tulsa	1,580.9	0.7	108.4**	183	46.2	1,365.4	229	512.4	247
228	240	**INTERNATIONAL MULTIFOODS** Minneapolis[9]	1,533.4	13.1	51.5	284	106.7	644.7	367	330.0	316
229	228	**CENTRAL SOYA** Fort Wayne[24]	1,522.8	3.2	8.7	414	382.4	408.8	439	69.9	463
230	406	**FREEPORT-MCMORAN** New Orleans	1,514.4	140.5	248.8	90	867.9	3,155.1	112	734.7	190
231	310	**AMDAHL** Sunnyvale, Calif.	1,505.2	55.8	146.0	155	249.0	1,507.5	212	765.7	183
232	239	**GOLD KIST** Atlanta[3]	1,500.3	7.6	N.A.		—	543.3	389	185.2	406
233	237	**MID-AMERICA DAIRYMEN** Springfield, Mo.	1,499.7	5.6	N.A.		—	366.9	454	138.2	433
234	238	**SQUARE D** Palatine, Ill.	1,484.2	5.8	110.0	181	11.2	1,193.1	243	679.7	201
235	247	**MURPHY OIL** El Dorado, Ark.	1,474.0*	12.2	(43.6)	459	—	2,066.6	168	750.1	186
236	379	**MASCO INDUSTRIES** Taylor, Mich.	1,470.4	106.4	44.3	301	371.8	1,792.5	190	394.7	288
237	273	**AVERY INTERNATIONAL** Pasadena, Calif.[21]	1,465.5	29.6	34.7	326	(28.6)	1,050.8	267	465.9	264
238	254	**DEAN FOODS** Franklin Park, Ill.[7]	1,434.6	13.1	41.1	311	0.8	430.1	423	236.4	368
239	265	**WILLAMETTE INDUSTRIES** Portland, Ore.	1,431.6	19.3	121.3	172	62.5	1,180.6	246	615.8	218
240	241	**WITCO** New York	1,427.6	5.4	63.3	247	(2.9)	1,056.3	265	513.6	246
241	249	**CABOT** Waltham, Mass.[5]	1,424.0	8.7	28.7‡	343	(59.6)	1,463.1	221	590.7	227
242	158	**PENN CENTRAL** Cincinnati	1,421.4	(40.5)	36.2	322	(76.5)	2,492.9	149	1,656.9	80
243	250	**THOMAS J. LIPTON** Englewood Cliffs, N.J.[22]	1,413.1	8.4	108.6	182	18.7	850.6	309	553.0	238
244	318	**CHICAGO PACIFIC** Chicago	1,411.9	47.9	34.9	325	21.1	1,493.7	214	438.1	270
245	•	**RELIANCE ELECTRIC** Cleveland	1,408.0	5.8	4.0**	425	(86.7)	1,482.0	216	41.0	472
246	262	**HOLLY FARMS** Memphis[7,32]	1,406.6	15.6	71.7	229	95.6	685.4	349	343.2	310
247	284	**FIELDCREST CANNON** Eden, N.C.	1,399.8	29.2	(3.7)	435	—	881.6	299	259.1	357
248	245	**AMSTAR** Stamford, Conn.[3]	1,399.6¶	5.9	23.6	368	(32.1)	800.2	320	68.5	464
249	242	**TEKTRONIX** Beaverton, Ore.[7]	1,395.9	3.2	51.2	286	30.2	1,159.4	247	838.4	171
250	186	**ALLEGHENY INTERNATIONAL** Pittsburgh[5]	1,389.5¶	(27.8)	(451.2)	477	—	850.5	310	(260.9)	485

The definitions, explanations, and footnotes underlying the figures in this directory are on page D33.

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MARKET VALUE		PROFITS AS PERCENT OF						EARNINGS PER SHARE				TOTAL RETURN TO INVESTORS				INDUSTRY TABLE NUMBER	RANK
		SALES		ASSETS		STOCKHOLDERS' EQUITY			% change from	1977-87 annual growth rate		1987		1977-87 annual average			
$ Millions	Rank	%	Rank	%	Rank	%	Rank	1987/$	1986	%	Rank	%	Rank	%	Rank		
1,932.8	150	7.7	115	6.6	214	12.4	267	2.25	35.0	7.5	194	4.6	238	17.2	199	9	201
1,043.6	234	1.4	402	1.7	398	4.2	398	1.01**	(73.6)	(15.0)	350	26.5	109	10.4	309	7	202
1,694.5	167	4.5	247	6.0	242	11.3	294	1.88	(5.1)	4.0	249	44.6	52	17.4	194	1	203
1,222.8	211	—		—		—		(0.38)**	—	—		12.9	166	10.7	307	7	204
447.1	348	0.2	430	0.4	426	0.8	421	0.14	—	—		9.2	196	—		17	205
3,119.3	96	2.5	367	1.3	407	7.1§	368	0.69	(4.2)	(11.1)	340	9.0	198	22.2	106	18	206
890.3	259	3.8	289	8.4	137	25.1	49	1.06	34.7	39.5	7	(29.0)	408	46.4	1	8	207
2,074.3	142	6.6	157	7.1	194	10.8	312	1.88	12.6	3.0	267	(27.6)	405	9.5	324	22	208
1,237.9	207	4.9	223	6.2	233	13.8	224	2.00	7.5	8.1	183	4.1	241	17.8	188	14	209
2,689.0	105	9.0	81	7.2	190	12.1	277	2.34	7.3	10.7	145	(23.4)	384	18.5	172	9	210
2,796.8	102	9.4	73	10.1	78	20.0	99	3.27	7.6	12.1	122	(9.3)	323	21.7	119	20	211
2,596.4	108	11.2	45	9.8	92	20.2§	95	1.57	12.1	11.3	135	0.2	270	26.6	51	5	212
983.4	243	5.1	215	8.3	139	13.7	231	8.59	15.1	9.5	163	2.3	257	15.5	230	14	213
1,893.4	153	6.3	168	8.3	143	17.4	156	2.06	32.5	14.2	87	28.7	100	23.4	82	14	214
2,531.6	110	9.5	72	9.4	109	19.4	107	1.96	20.2	17.9	45	(11.9)	340	28.5	28	20	215
1,152.6	214	4.5	253	5.7	257	11.9	285	2.20	(36.8)	3.0	266	37.4	74	19.4	161	11	216
555.5	317	3.4	327	5.1	290	11.0	308	3.13	71.0	13.3	98	24.5	114	22.4	101	24	217
593.3	311	4.6	246	7.4	187	—		2.15	225.8	20.9	27	(2.5)	292	23.6	80	1	218
1,250.9	205	1.3	403	0.9	416	2.0	414	0.31‡	—	(22.7)	355	84.2	16	12.3	277	5	219
966.9	249	3.5	309	5.8	252	11.2	299	3.29	9.3	2.8	270	(21.0)	377	15.7	228	24	220
1,276.5	199	12.8	33	9.1	115	15.4§	191	6.48**	262.0	24.4	16	127.3	9	10.0	316	15	221
1,373.6	192	4.3	265	5.0	300	7.6	363	2.46	(5.4)	0.1	299	10.1	190	8.7	330	22	222
1,279.7	197	8.8	88	7.9	162	15.2	194	4.69	77.7	—		6.6	220	—		9	223
1,532.7	177	0.7	416	1.0	414	2.5§	408	2.44	16.7	(0.8)	305	10.2	189	8.7	329	16	224
2,053.9	143	7.0	135	9.7	97	16.6	168	3.31	36.8	12.2	120	43.0	56	22.1	108	11	225
2,482.5	114	9.4	75	7.8	164	17.2	160	3.57	25.3	11.3	136	3.3	250	15.0	237	22	226
1,048.1	231	6.9	144	7.9	157	21.2	80	5.20**	49.4	5.0	235	(17.1)	362	6.2	350	18	227
456.6	345	3.4	325	8.0	153	15.6§	188	3.64	79.6	7.9	188	14.7	158	12.0	284	8	228
N.A.		0.6	421	2.1	387	12.4	266	N.A.	—	—		—		—		8	229
1,839.2	159	16.4	15	7.9	160	33.9	21	3.38	789.5	25.8	14	49.3	40	24.3	69	16	230
1,886.6	154	9.7	65	9.7	98	19.1	120	2.82	227.9	2.0	281	51.7	35	11.3	296	6	231
N.A.		—		—		—		N.A.	—	—		—		—		8	232
N.A.		—		—		—		N.A.	—	—		—		—		8	233
1,491.3	183	7.4	128	9.2	113	16.2	175	3.82	11.7	4.5	242	16.6	148	13.3	265	7	234
944.0	253	—		—		—		(1.29)	—	—		(4.8)	300	9.1	326	18	235
1,024.3	237	3.0	343	2.5	379	11.2	300	0.45	350.0	—		(14.3)	355	—		14	236
1,041.5	235	2.4	372	3.3	356	7.5	367	0.81	(33.9)	7.3	199	4.8	237	21.4	123	9	237
800.9	273	2.9	351	9.1	116	17.4	157	1.54	0.7	15.4	71	(9.8)	327	29.8	21	8	238
1,149.7	215	8.5	92	10.3	76	19.7	103	4.78	62.6	9.5	162	9.1	197	17.1	201	9	239
804.4	271	4.4	261	6.0	240	12.3	269	2.72	(7.2)	7.9	187	(11.1)	335	20.8	135	18	240
967.9	248	2.0	378	2.0	392	4.9	392	1.04‡	(58.2)	(1.9)	311	11.7	178	20.0	152	5	241
1,624.3	172	2.5	364	1.5	402	2.2	411	0.46	(88.1)	—		(11.9)	341	—		15	242
N.A.		7.7	114	12.8	39	19.6	104	N.A.	—	—		—		—		8	243
353.7	376	2.5	368	2.3	383	8.0	360	3.61	8.1	—		(9.5)	325	—		7	244
N.A.		0.3	426	0.3	430	9.8	337	10.87**	—	—		—		—		7	245
523.6	326	5.1	217	10.5	68	20.9	83	4.31	92.4	18.6	38	(30.8)	416	19.9	154	8	246
238.8	408	—		—		—		(0.36)	—	—		(55.9)	438	6.3	349	24	247
N.A.		1.7	390	2.9	362	34.4	18	N.A.	—	—		—		—		8	248
790.4	279	3.7	299	4.4	328	6.1	378	1.33	35.0	0.7	293	(26.0)	393	4.4	369	22	249
29.9	444	—		—		—		(44.87)	—	—		(78.0)	442	(13.7)	397	7	250

THE FORTUNE 500
LARGEST U.S. INDUSTRIAL CORPORATIONS

RANK 1987	RANK 1986	COMPANY	SALES $ Millions	SALES % change from 1986	PROFITS $ Millions	PROFITS Rank	PROFITS % change from 1986	ASSETS $ Millions	ASSETS Rank	STOCKHOLDERS' EQUITY $ Millions	STOCKHOLDERS' EQUITY Rank
251	207	**NATIONAL GYPSUM** Dallas	1,379.8	(18.6)	(22.8)	451	—	1,978.1	175	159.3	420
252	298	**ARVIN INDUSTRIES** Columbus, Ind.	1,373.1	37.9	47.6	295	15.5	808.2	315	424.8	277
253	252	**NL INDUSTRIES** Houston	1,371.5	6.9	(19.9)	450	—	1,303.7	236	396.1	286
254	236	**SUNDSTRAND** Rockford, Ill.	1,365.5	(4.8)	34.6	327	(23.7)	1,480.2	217	595.0	226
255	291	**ASARCO** New York	1,355.2	28.3	279.3**	78	2,956.2	2,073.1	167	1,211.8	119
256	246	**ADOLPH COORS** Golden, Colo.	1,350.7*	2.7	48.1	293	(18.9)	1,456.5	222	1,031.8	144
257	300	**SEQUA** New York[33]	1,350.0¶	37.1	N.A.		—	N.A.		N.A.	
258	229	**WILSON FOODS** Oklahoma City[15]	1,347.6	(7.3)	5.6**	420	—	203.4	491	70.8	461
259	251	**PERKIN ELMER** Norwalk, Conn.[15]	1,333.6	3.3	(18.2)	446	—	1,399.8	225	695.6	200
260	266	**WEIRTON STEEL** Weirton, W.Va.	1,329.0	13.2	80.6	215	78.7	676.9	352	211.9	385
261	253	**NATIONAL SERVICE INDUSTRIES** Atlanta[24]	1,326.9	3.4	75.7	222	6.1	760.3	328	508.2	249
262	243	**HASBRO** Pawtucket, R.I.	1,326.1	(0.3)	48.2	291	(51.4)	1,076.0	257	641.5	210
263	263	**WASHINGTON POST** Washington	1,315.4	8.3	186.7	126	86.4	1,194.2	242	614.0	219
264	272	**DOW JONES** New York	1,314.4	15.8	203.0	115	10.7	1,942.6	179	847.5	170
265	313	**SONOCO PRODUCTS** Hartsville, S.C.	1,312.1	36.1	61.5	253	12.4	877.6	300	379.9	294
266	283	**DOW CORNING** Midland, Mich.	1,303.0	20.0	135.0	165	22.1	1,361.2	230	707.5	197
267	314	**NORTEK** Providence	1,303.0	35.3	(7.3)‡	437	—	1,129.2	251	222.8	375
268	307	**HARCOURT BRACE JOVANOVICH** Orlando, Fla.[6]	1,291.4¶	33.3	90.5‡	197	28.4	2,039.1	170	(1,382.7)	491
269	306	**OUTBOARD MARINE** Waukegan, Ill.[5]	1,289.2	32.7	61.8**	252	331.0	966.4	283	517.6	245
270	264	**CRANE** New York	1,284.0	6.6	59.3**	259	54.5	661.7	357	255.7	360
271	255	**DATA GENERAL** Westboro, Mass.[5]	1,274.3	0.5	(127.1)‡	473	—	1,069.2	261	588.2	229
272	277	**NORTON** Worcester, Mass.	1,260.9	13.9	66.5	241	—	1,037.8	269	518.9	244
273	261	**FLEETWOOD ENTERPRISES** Riverside, Calif.[13]	1,259.3	3.4	39.7	315	1.0	482.2	413	316.5	327
274	258	**UNION TEXAS PETROLEUM HOLDINGS** Houston	1,257.4	0.1	55.9	270	—	1,632.8	202	132.6	437
275	280	**INSPIRATION RESOURCES** New York	1,243.4	13.2	24.8**	363	(34.5)	894.7	296	353.8	304
276	305	**ESSELTE BUSINESS SYSTEMS** Garden City, N.Y.[34]	1,242.4	27.7	57.3	265	25.0	1,027.4	270	435.4	273
277	270	**EG&G** Wellesley, Mass.	1,235.9	7.9	55.5	274	23.5	515.5	402	217.4	378
278	235	**GOULD** Rolling Meadows, Ill.	1,233.4¶	(14.2)	(95.6)	467	—	1,182.8	245	477.1	260
279	325	**BOWATER** Darien, Conn.	1,231.0	33.8	81.1	213	64.1	1,699.8	195	786.6	180
280	290	**TIMKEN** Canton, Ohio	1,230.3	16.3	10.3	413	277.2	1,466.6	220	923.1	154
281	271	**E-SYSTEMS** Dallas	1,227.2	8.1	60.4	256	(1.9)	665.6	354	429.5	275
282	409	**COMPAQ COMPUTER** Houston	1,224.1	95.8	136.3	164	217.7	901.0	295	399.5	283
283	312	**LAFARGE** Reston, Va.	1,221.5	26.7	75.0	224	188.6	1,054.2	266	571.3	234
284	257	**FOSTER WHEELER** Clinton, N.J.	1,219.1	(3.1)	3.0	428	(89.2)	1,079.7	256	449.0	266
285	130	**MAXUS ENERGY** Dallas[35]	1,217.3¶	(60.5)	(539.6)	478	—	1,900.5	183	197.0	398
286	268	**DWG** Miami Beach[13]	1,213.6	4.4	13.2**	397	—	875.7	301	117.8	444
287	287	**NATIONAL STARCH & CHEMICAL** Bridgewater, N.J.[22]	1,207.9	13.6	92.2	195	28.4	940.5	286	498.4	253
288	358	**ARMTEK** New Haven, Conn.[5,36]	1,198.4	49.8	20.5	381	—	781.9	324	202.0	391
289	276	**PENNWALT** Philadelphia	1,196.8	8.1	52.4	280	0.9	1,041.7	268	475.1	262
290	363	**TOSCO** Santa Monica, Calif.	1,187.3	52.2	53.0**	278	201.2	559.4	383	201.0	395
291	274	**HARSCO** Wormleysburg, Pa.	1,169.2	3.4	63.3	248	36.4	802.3	319	444.0	268
292	304	**HIMONT** Wilmington, Del.[11,37]	1,165.0	19.6	226.9	103	133.1	1,512.4	211	1,072.2	134
293	390	**AM INTERNATIONAL** Chicago[15]	1,162.8	68.8	12.5**	409	118.5	1,074.4	259	260.9	355
294	275	**CERTAINTEED** Valley Forge, Pa.[38]	1,158.4	4.0	61.4	254	7.2	856.0	307	542.5	240
295	260	**FARMERS UNION CENTRAL EXCHANGE** St. Paul[5]	1,138.5	(6.7)	N.A.		—	639.1	368	281.5	345
296	282	**CLOROX** Oakland[9]	1,126.0	3.4	104.9	189	9.7	933.3	290	616.4	217
297	360	**TYCO LABORATORIES** Exeter, N.H.[7]	1,115.9	40.1	26.8	350	(28.5)	594.2	375	235.4	369
298	296	**AMERICAN GREETINGS** Cleveland[9]	1,102.5	8.9	63.4	246	(14.9)	1,022.6	272	524.4	242
299	329	**ECHLIN** Branford, Conn.[24]	1,099.7	21.9	45.6	299	(6.6)	869.1	304	603.5	224
300	315	**TYLER** Dallas	1,099.5	14.4	12.0‡	410	0.6	542.3	390	179.0	409

The definitions, explanations, and footnotes underlying the figures in this directory are on page D33.

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MARKET VALUE		PROFITS AS PERCENT OF						EARNINGS PER SHARE				TOTAL RETURN TO INVESTORS				INDUSTRY TABLE NUMBER	RANK
		SALES		ASSETS		STOCKHOLDERS' EQUITY			% change from 1986	1977-87 annual growth rate		1987		1977-87 annual average			
$ Millions	Rank	%	Rank	%	Rank	%	Rank	1987/$		%	Rank	%	Rank	%	Rank		
N.A.		—		—		—		(2.58)	—	—		—		—		4	**251**
430.7	353	3.5	312	5.9	247	11.2	302	2.41	(2.0)	0.8	292	(29.5)	413	13.8	256	17	**252**
461.8	342	—		—		—		(1.20)	—	—		10.5	185	4.5	366	5	**253**
969.2	247	2.5	365	2.3	382	5.8	380	1.85	(23.6)	(2.2)	313	(17.6)	364	5.6	356	1	**254**
1,068.5	228	20.6	8	13.5	32	23.1	69	5.34**	—	—		92.3	13	8.9	328	15	**255**
736.5	285	3.6	303	3.3	355	4.7	394	1.32	(20.0)	(3.7)	322	(28.3)	407	4.6	365	3	**256**
719.3	289	—		—		—		N.A.	—	—		(25.0)	389	16.0	223	1	**257**
99.2	434	0.4	424	2.8	371	7.9	361	0.67**	—	—		(15.3)	356	—		8	**258**
1,235.8	208	—		—		—		(0.40)	—	—		(4.1)	296	11.3	294	22	**259**
N.A.		6.1	174	11.9	54	38.0	14	N.A.	—	—		—		—		15	**260**
1,126.7	221	5.7	189	10.0	86	14.9	199	1.54	6.4	12.3	116	(2.0)	289	25.1	63	7	**261**
753.2	283	3.6	301	4.5	324	7.5	365	0.82	(52.0)	30.4	9	(31.7)	419	46.2	2	26	**262**
2,443.0	116	14.2	26	15.6	20	30.4	32	14.52	86.2	21.4	25	20.7	129	28.2	32	20	**263**
3,226.3	94	15.4	19	10.5	71	24.0	59	2.10	11.1	17.6	46	(22.3)	382	20.9	132	20	**264**
1,096.6	223	4.7	236	7.0	203	16.2	176	1.40	12.0	11.9	127	13.9	162	25.6	61	9	**265**
N.A.		10.4	58	9.9	90	19.1	118	N.A.	—	—		—		—		5	**266**
144.7	424	—		—		—		(0.46)‡	—	—		(45.7)	431	16.2	220	9	**267**
480.8	338	7.0	137	4.4	326	—		1.34‡	(29.8)	6.5	209	(53.5)	437	11.9	286	20	**268**
551.3	318	4.8	233	6.4	225	11.9	284	3.38**	297.6	8.4	180	(17.2)	363	12.3	276	11	**269**
678.9	294	4.6	239	9.0	121	23.2	66	2.63**	40.9	2.7	272	(1.4)	282	14.3	247	11	**270**
686.3	293	—		—		—		(4.71)‡	—	—		(20.3)	375	(0.7)	385	6	**271**
978.1	244	5.3	208	6.4	223	12.8	253	3.20	—	2.4	277	30.6	90	14.1	251	4	**272**
478.1	339	3.2	336	8.2	146	12.6	260	1.70	0.6	9.8	159	(29.9)	414	14.6	243	27	**273**
978.0	245	4.4	257	3.4	351	42.2§	9	0.05	—	—		—		—		16	**274**
429.5	354	2.0	379	2.8	369	7.0	370	0.38**	(35.6)	—		42.1	57	—		16	**275**
792.8	277	4.6	240	5.6	265	13.2	241	2.79	24.6	—		6.5	222	—		9	**276**
1,027.0	236	4.5	250	10.8	66	25.5	47	2.00	21.2	17.0	49	19.6	134	24.1	72	22	**277**
561.7	316	—		—		—		(2.12)	—	—		(26.2)	396	(4.2)	390	6	**278**
1,281.9	196	6.6	156	4.8	310	10.3	325	2.13	41.1	—		(0.8)	278	—		9	**279**
997.6	239	0.8	412	0.7	422	1.1	419	0.78	254.5	(19.3)	353	41.7	58	6.1	352	11	**280**
928.5	255	4.9	222	9.1	119	14.1	222	1.95	(2.5)	7.9	186	(10.0)	328	21.2	127	7	**281**
1,799.5	161	11.1	46	15.1	21	34.1	20	3.59	136.2	—		187.7	2	—		6	**282**
663.4	298	6.1	170	7.1	196	13.1	243	1.65	184.5	—		30.3	92	—		4	**283**
487.6	336	0.2	428	0.3	429	0.7	422	0.09	(88.9)	(19.9)	354	7.5	216	10.2	313	11	**284**
660.6	299	—		—		—		(6.23)	—	—		(26.8)	398	(4.8)	391	16	**285**
121.2	427	1.5	398	2.1	389	15.5	190	0.58**	—	5.1	234	166.7	5	16.7	213	24	**286**
N.A.		7.6	116	9.8	91	18.5	132	N.A.	—	—		—		—		5	**287**
266.9	399	1.7	389	2.6	375	10.1	329	2.08	—	0.2	298	28.4	102	15.9	224	21	**288**
604.6	309	4.4	263	5.0	298	11.0	307	4.02	10.4	(0.5)	302	(6.2)	305	8.0	334	5	**289**
90.7	438	4.5	255	9.5	105	26.3	43	0.63**	18.9	1.6	285	(12.5)	344	(9.8)	394	18	**290**
905.2	257	5.4	201	7.9	159	14.3	216	2.20	41.0	3.9	254	11.4	179	17.8	186	14	**291**
2,593.4	109	19.5	9	15.0	22	21.2	78	3.77	73.7	—		5.0	235	—		5	**292**
231.9	409	1.1	407	1.2	410	4.8	393	0.11**	83.3	—		(25.5)	391	(10.8)	396	11	**293**
895.0	258	5.3	206	7.2	191	11.3	296	3.23	7.0	(1.3)	308	(17.7)	365	3.9	371	4	**294**
N.A.		—		—		—		N.A.	—	—		—		—		18	**295**
1,700.9	166	9.3	76	11.2	60	17.0	165	1.96	8.9	10.5	148	11.9	175	20.6	140	23	**296**
916.0	256	2.4	370	4.5	323	11.4	293	1.54	(29.0)	11.7	128	12.7	171	33.4	13	14	**297**
571.6	314	5.7	187	6.2	236	12.1	276	1.97	(15.1)	12.6	111	(45.0)	429	11.1	300	20	**298**
868.8	260	4.1	272	5.3	281	7.6	364	0.88	(20.7)	4.6	241	(26.1)	395	10.9	303	17	**299**
227.8	412	1.1	406	2.2	385	6.7	371	0.68‡	3.0	(2.9)	318	(11.8)	339	8.1	333	5	**300**

THE FORTUNE 500
LARGEST U.S. INDUSTRIAL CORPORATIONS

RANK		COMPANY	SALES		PROFITS			ASSETS		STOCKHOLDERS' EQUITY	
1987	1986		$ Millions	% change from 1986	$ Millions	Rank	% change from 1986	$ Millions	Rank	$ Millions	Rank
301	294	**JEFFERSON SMURFIT** St. Louis[39]	1,099.5	5.3	92.0	196	228.5	691.4	346	218.1	377
302	299	**BROWN-FORMAN** Louisville[13]	1,098.1*	10.4	89.6	198	3.7	1,056.7	264	589.7	228
303	233	**CYCLOPS INDUSTRIES** Pittsburgh[40]	1,097.8¶	(23.8)	(17.0)	444	—	375.5	450	(3.3)	477
304	126	**CHESEBROUGH-POND'S** Greenwich, Conn.[22]	1,087.2	(60.2)	76.2	221	(52.2)	732.9	335	N.A.	
305	293	**CROWN CENTRAL PETROLEUM** Baltimore	1,086.8*	3.4	31.8	335	—	418.3	434	168.9	413
306	286	**BROCKWAY** Jacksonville, Fla.	1,082.4	1.6	40.8	312	34.6	535.6	394	276.4	350
307	288	**HARTMARX** Chicago[21]	1,080.4	1.6	41.3	308	66.6	660.3	359	343.9	309
308	303	**MCCORMICK** Hunt Valley, Md.[21]	1,078.5	10.5	30.6	340	2.8	718.0	336	280.6	348
309	321	**FEDERAL-MOGUL** Southfield, Mich.	1,075.4	14.2	41.1	310	1,041.1	803.6	318	341.7	313
310	317	**VULCAN MATERIALS** Birmingham, Ala.	1,063.1¶	11.0	116.2	175	24.7	928.5	291	571.7	233
311	285	**BALL** Muncie, Ind.	1,054.1	(1.5)	66.3	242	12.6	794.9	321	397.4	285
312	351	**LIZ CLAIBORNE** North Bergen, N.J.	1,053.3	29.5	114.4	177	32.7	482.4	412	357.0	300
313	297	**GENERAL CINEMA** Chestnut Hill, Mass.[11]	1,052.9	4.0	69.4	238	(44.8)	1,647.4	199	542.3	241
314	347	**HARNISCHFEGER INDUSTRIES** Brookfield, Wis.[11]	1,049.4	26.4	22.9**	372	1,649.3	1,070.7	260	323.4	324
315	319	**CLARK EQUIPMENT** South Bend, Ind.	1,048.2	9.9	(16.6)	443	—	883.6	298	359.5	299
316	337	**SMITHFIELD FOODS** Arlington, Va.[13]	1,046.6	21.1	6.6‡	418	41.8	130.4	494	34.3	473
317	308	**GERBER PRODUCTS** Fremont, Mich.[41]	1,045.8¶	8.1	28.5	345	(37.4)	716.8	337	328.8	318
318	365	**TANDEM COMPUTERS** Cupertino, Calif.[5]	1,035.5	34.9	105.6	187	65.6	967.2	282	720.9	196
319	320	**FEDERAL PAPER BOARD** Montvale, N.J.	1,025.7	8.1	65.8‡	243	257.2	1,183.5	244	520.8	243
320	324	**FIGGIE INTERNATIONAL** Richmond	1,022.7	11.2	49.3	289	16.3	664.1	355	322.6	325
321	328	**HOUSEHOLD MANUFACTURING** Prospect Heights, Ill.[42]	1,020.3¶	12.1	57.5	261	—	693.1	345	325.8	320
322	289	**MATTEL** Hawthorne, Calif.[29]	1,020.1	(3.6)	(113.2)	472	—	774.6	325	104.5	451
323	361	**RUBBERMAID** Wooster, Ohio	1,015.0	27.6	84.5	208	20.7	716.0	338	435.9	272
324	301	**LUBRIZOL** Wickliffe, Ohio	1,013.4	3.8	81.3	212	4.0	939.4	288	621.6	215
325	259	**FRUIT OF THE LOOM** Chicago[43]	1,013.0¶	(18.7)	(13.4)‡	440	—	1,609.6	204	193.1	399
326	323	**WHEELING-PITTSBURGH STEEL** Pittsburgh	1,001.4	7.2	(65.7)**	463	—	1,002.5	276	(282.7)	486
327	311	**A.O. SMITH** Milwaukee	998.8	3.5	18.4**	395	(36.4)	682.0	350	291.7	341
328	436	**ADVANCED MICRO DEVICES** Sunnyvale, Calif.	997.1	73.1	(48.1)	462	—	1,113.7	253	659.9	205
329	333	**CHAMPION SPARK PLUG** Toledo	995.6	12.6	19.1	391	10.9	653.0	364	387.4	291
330	302	**POTLATCH** San Francisco	992.1	1.6	87.6	203	25.3	1,306.6	235	638.0	211
331	353	**ECOLAB** St. Paul[3,44]	989.3	21.7	52.2	282	19.5	982.4	278	290.3	342
332	326	**VARIAN ASSOCIATES** Palo Alto, Calif.[5]	982.8	7.7	21.4	377	—	829.6	312	438.1	269
333	389	**YORK INTERNATIONAL** York, Pa.	963.1	39.6	27.6	348	236.3	505.4	404	213.8	381
334	338	**PRIME COMPUTER** Natick, Mass.	960.9	11.7	64.8	245	38.0	1,334.6	233	503.8	251
335	481	**SEAGATE TECHNOLOGY** Scotts Valley, Calif.[3]	958.1	108.3	139.7	161	304.6	814.1	314	354.0	303
336	350	**MACMILLAN** New York	955.8	16.9	70.7	233	18.8	937.1	289	342.6	311
337	348	**TECUMSEH PRODUCTS** Tecumseh, Mich.	951.2	15.8	71.6	230	41.2	764.0	327	575.7	232
338	354	**PACIFIC RESOURCES** Honolulu	949.6	17.0	6.1**	419	(77.9)	537.7	393	199.4	397
339	335	**DELUXE CHECK PRINTERS** St. Paul	948.0	9.4	148.5	149	22.6	866.3	305	490.8	257
340	344	**GENERAL INSTRUMENT** New York[9]	947.2	12.6	(80.4)	466	—	940.3	287	467.5	263
341	359	**RAYCHEM** Menlo Park, Calif.[3]	944.4	18.4	73.6	227	50.8	926.9	292	570.9	235
342	336	**BEMIS** Minneapolis	930.0	7.6	32.0	334	24.7	545.3	387	216.2	379
343	342	**RORER GROUP** Fort Washington, Pa.	928.8	10.0	54.3	276	(56.8)	1,240.5	240	404.3	281
344	•	**ARISTECH CHEMICAL** Pittsburgh	918.8	22.4	69.7	237	46.4	551.2	384	362.7	298
345	•	**FISHER SCIENTIFIC GROUP** La Jolla, Calif.[45]	908.3	14.4	30.9	338	—	550.0	385	294.7	339
346	309	**FAIRCHILD INDUSTRIES** Chantilly, Va.	897.1¶	(7.3)	23.1**	371	—	475.8	415	46.6	471
347	402	**SAVANNAH FOODS & INDUSTRIES** Savannah	878.7	38.5	14.0	402	34.8	359.1	459	119.5	443
348	269	**MINSTAR** Minneapolis	877.2¶	(24.1)	(2.5)‡	433	—	503.6	406	159.1	421
349	377	**FERRO** Cleveland	871.1	20.1	31.7	336	31.6	532.0	398	259.8	356
350	•	**ALLEGHENY LUDLUM** Pittsburgh	866.6	18.3	46.2	297	53.6	649.0	365	209.3	387

The definitions, explanations, and footnotes underlying the figures in this directory are on page D33.

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MARKET VALUE		PROFITS AS PERCENT OF						EARNINGS PER SHARE				TOTAL RETURN TO INVESTORS				INDUSTRY TABLE NUMBER	RANK
		SALES		ASSETS		STOCKHOLDERS' EQUITY			% change from	1977-87 annual growth rate		1987		1977-87 annual average			
$ Millions	Rank	%	Rank	%	Rank	%	Rank	1987/$	1986	%	Rank	%	Rank	%	Rank		
1,064.6	229	8.4	95	13.3	34	42.2	8	4.77	226.7	—		33.2	82	—		9	**301**
1,500.3	181	8.2	103	8.5	132	15.2	195	2.78	3.7	16.3	58	(10.7)	333	21.2	126	3	**302**
169.9	417	—		—		—		(2.53)	—	—		—		—		15	**303**
N.A.		7.0	136	10.4	73	N.A.		—	—	—		—		—		23	**304**
94.1	435	2.9	346	7.6	176	18.8§	125	3.78	—	4.0	250	10.6	184	6.6	346	18	**305**
N.A.		3.8	294	7.6	175	14.7	204	3.26	33.6	6.1	213	111.7	11	20.6	139	4	**306**
524.2	325	3.8	287	6.2	232	12.0	282	2.01	67.5	9.7	161	35.3	80	27.1	42	2	**307**
498.8	332	2.8	352	4.3	332	10.9	311	2.59	5.3	6.7	206	(5.3)	301	12.3	280	8	**308**
517.9	327	3.8	286	5.1	292	12.0	278	3.24	1,057.1	3.6	258	(12.8)	347	17.8	187	17	**309**
1,512.0	178	10.9	48	12.5	43	20.3	93	10.94	30.2	12.4	114	7.9	207	24.1	73	16	**310**
801.4	272	6.3	166	8.3	140	16.7	167	2.80	9.4	12.9	107	2.7	253	27.3	40	14	**311**
1,470.4	186	10.9	50	23.7	5	32.1	29	1.32	32.0	—		(22.3)	381	—		2	**312**
1,228.9	210	6.6	155	4.2	334	12.8	254	0.94	(45.2)	15.2	74	(11.4)	336	20.1	151	3	**313**
544.7	319	2.2	374	2.1	386	7.1§	369	0.96**	—	(9.1)	333	30.3	93	3.2	375	11	**314**
426.4	356	—		—		—		(0.95)	—	—		22.2	124	1.1	381	11	**315**
113.2	432	0.6	418	5.1	297	19.3	113	1.48‡	51.8	13.4	96	31.0	88	32.7	16	8	**316**
835.9	267	2.7	357	4.0	338	8.7	352	1.42	(36.3)	1.5	286	(14.1)	354	16.1	221	8	**317**
1,944.7	149	10.2	59	10.9	64	14.6	209	1.08	50.0	59.7	3	60.6	26	35.6	8	6	**318**
794.9	275	6.4	162	5.6	268	12.6	259	3.27‡	289.3	12.3	117	45.3	51	23.2	87	9	**319**
515.5	328	4.8	231	7.4	183	15.3	193	7.02	11.3	15.9	63	39.2	66	27.0	46	11	**320**
N.A.		5.6	193	8.3	141	17.7	149	N.A.	—	—		—		—		14	**321**
280.6	394	—		—		—		(2.11)	—	—		(16.7)	358	(0.4)	384	26	**322**
1,752.0	164	8.3	96	11.8	56	19.4	109	1.15	19.8	15.5	69	3.9	243	26.3	52	21	**323**
1,475.6	185	8.0	106	8.7	128	13.1	245	2.06	4.6	3.4	263	7.8	208	10.8	304	5	**324**
369.3	371	—		—		—		(0.40)‡	—	—		—		—		2	**325**
50.5	441	—		—		—		(14.61)**	—	—		(12.9)	349	(2.6)	389	15	**326**
150.6	422	1.8	386	2.7	372	6.3	377	1.74**	(43.3)	(3.7)	323	(31.3)	417	7.7	340	17	**327**
991.2	241	—		—		—		(0.72)	—	—		(28.2)	406	19.6	159	7	**328**
460.0	343	1.9	383	2.9	364	4.9	389	0.50	—	(9.1)	334	6.2	227	6.2	351	7	**329**
839.3	265	8.8	87	6.7	209	13.7	228	3.13	25.7	4.3	245	1.0	267	11.3	295	9	**330**
734.6	286	5.3	207	5.3	279	18.0	142	1.95	20.4	8.5	178	4.4	239	11.8	287	23	**331**
637.3	301	2.2	375	2.6	377	4.9	391	0.98	—	1.7	284	7.5	214	11.1	301	7	**332**
260.0	402	2.9	350	5.5	272	12.9	249	2.82	220.5	—		47.7	43	—		11	**333**
794.7	276	6.7	148	4.9	306	12.9	251	1.32	36.1	28.4	10	(5.3)	302	23.7	79	6	**334**
1,054.9	230	14.6	22	17.2	14	39.5	12	2.81	290.3	—		(22.2)	381	—		7	**335**
1,500.0	182	7.4	129	7.5	179	20.6	89	2.74	11.1	14.9	79	38.3	71	31.3	20	20	**336**
795.9	274	7.5	121	9.4	108	12.4	264	13.09	41.2	6.2	211	10.4	188	13.9	253	11	**337**
199.8	414	0.6	417	1.1	411	3.1	405	0.15**	(89.4)	(10.7)	339	(31.4)	418	15.4	232	18	**338**
2,290.9	129	15.7	18	17.1	15	30.3	34	1.74	22.5	20.1	29	(29.0)	410	26.2	53	20	**339**
1,136.7	218	—		—		—		(2.49)	—	—		64.8	20	17.1	202	7	**340**
1,866.4	157	7.8	111	7.9	155	12.9	250	6.74	44.9	16.1	61	51.3	37	18.1	179	7	**341**
492.8	333	3.4	318	5.9	248	14.8	203	1.18	(36.2)	3.6	259	38.8	70	27.5	38	9	**342**
1,127.9	220	5.9	182	4.4	329	13.4	237	1.67	(71.1)	4.0	252	(1.1)	280	14.5	244	19	**343**
777.2	280	7.6	119	12.6	41	19.2	114	2.71	—	—		51.6	36	—		5	**344**
668.2	297	3.4	321	5.6	263	10.5	318	0.85	—	—		—		—		22	**345**
120.2	428	2.6	363	4.8	307	49.5§	4	0.84**	—	0.2	296	(11.0)	334	6.4	348	1	**346**
184.9	416	1.6	392	3.9	341	11.7	288	2.11	35.3	10.0	157	21.6	126	28.7	27	8	**347**
316.4	383	—		—		—		(0.15)‡	—	—		(1.1)	281	22.0	112	27	**348**
386.3	366	3.6	300	6.0	244	12.2	275	2.30	283.3	5.2	232	19.2	135	13.8	257	5	**349**
595.4	310	5.3	203	7.1	195	22.1	71	2.27	—	—		—		—		15	**350**

THE FORTUNE 500

LARGEST U.S. INDUSTRIAL CORPORATIONS

RANK		COMPANY	SALES		PROFITS			ASSETS		STOCKHOLDERS' EQUITY	
1987	1986		$ Millions	% change from 1986	$ Millions	Rank	% change from 1986	$ Millions	Rank	$ Millions	Rank
351	362	**A.H. ROBINS** Richmond	855.8	8.3	(1,632.4)	479	—	1,025.2	271	(1,530.6)	492
352	370	**NUCOR** Charlotte, N.C.	851.0	12.7	50.5	288	8.8	654.1	362	428.0	276
353	331	**QUAKER STATE** Oil City, Pa.	848.0	(5.7)	(48.1)	461	—	612.6	372	320.3	326
354	375	**NALCO CHEMICAL** Naperville, Ill.	841.9	14.4	80.3	216	26.0	746.9	333	446.8	267
355	384	**BAUSCH & LOMB** Rochester, N.Y.	840.3	20.2	85.3	206	14.3	979.0	279	576.6	231
356	372	**GAF** Wayne, N.J.	836.9	11.0	237.6**	96	194.4	1,297.8	238	508.3	248
357	340	**CINCINNATI MILACRON** Cincinnati	828.0	(2.6)	(80.0)	465	—	706.5	341	214.9	380
358	376	**INTERLAKE** Oak Brook, Ill.	823.1	11.8	54.4	275	67.0	693.8	344	281.3	346
359	•	**AMSTED INDUSTRIES** Chicago[5]	822.7	2.1	(19.3)	449	—	646.0	366	N.A.	
360	387	**TELEX** Tulsa[41]	821.9	18.3	77.2	219	14.4	618.2	370	351.4	305
361	349	**LOUISIANA LAND & EXPLORATION** New Orleans	819.1	0.1	24.8	362	—	1,607.1	205	586.7	230
362	371	**WORTHINGTON INDUSTRIES** Columbus, Ohio[7]	818.8	8.6	42.1	306	0.4	455.2	420	260.9	354
363	366	**CF INDUSTRIES** Long Grove, Ill.	809.6	5.7	N.A.		—	856.1	306	476.9	261
364	369	**MOHASCO** Fairfax, Va.	806.9	6.5	12.7‡	406	(19.8)	371.3	452	229.0	372
365	460	**DANAHER** Washington	802.7¶	53.2	19.0	392	23.2	655.3	361	103.3	452
366	385	**FLOWERS INDUSTRIES** Thomasville, Ga.[3]	797.2	14.1	27.6	347	(6.4)	399.4	444	177.7	412
367	355	**CYPRUS MINERALS** Englewood, Colo.	795.3	(1.9)	26.2	354	23.8	1,147.6	249	849.6	168
368	411	**PENTAIR** St. Paul	789.2	26.5	21.9	374	43.6	440.4	428	208.6	388
369	373	**BRIGGS & STRATTON** Wauwatosa, Wis.[3]	784.7	5.2	26.6	351	(21.9)	451.9	422	296.3	337
370	396	**DEXTER** Windsor Locks, Conn.	782.8	20.4	42.8	305	27.2	605.8	373	293.8	340
371	383	**WM. WRIGLEY JR.** Chicago	781.1	11.7	70.1	234	30.3	407.3	441	289.0	343
372	392	**SEALED POWER** Muskegon, Mich.	774.2	16.3	26.1	355	(8.4)	562.4	380	288.2	344
373	346	**FUQUA INDUSTRIES** Atlanta	772.3	(7.0)	62.9	249	59.1	748.5	331	308.7	331
374	424	**ANCHOR GLASS CONTAINER** Tampa[46]	766.1	30.4	20.0	383	(9.5)	766.0	326	86.7	456
375	357	**UNITED MERCHANTS & MANUFACTURERS** New York[3]	762.1	(5.0)	(15.3)	441	—	545.2	388	100.4	454
376	334	**LONE STAR INDUSTRIES** Greenwich, Conn.	760.8	(13.9)	57.2	266	(51.3)	1,492.8	215	646.9	207
377	330	**INTERNATIONAL CONTROLS** Boca Raton, Fla.	760.4[10]	(15.7)	N.A.		—	N.A.		N.A.	
378	391	**SNAP-ON TOOLS** Kenosha, Wis.	754.3	12.6	88.6	200	35.3	615.8	371	457.5	265
379	386	**STORAGE TECHNOLOGY** Louisville, Ky.	750.0	7.8	26.0‡	356	(28.1)	786.1	323	233.4	371
380	380	**INTERSTATE BAKERIES** Kansas City, Mo.[7]	749.3	5.8	13.9	403	(9.0)	246.7	483	102.3	453
381	412	**INTERNATIONAL FLAVORS & FRAGRANCES** New York	745.9	20.2	107.0	184	24.9	874.6	302	659.9	204
382	395	**CONSOLIDATED PAPERS** Wisconsin Rapids, Wis.	742.8	13.8	95.8	193	9.4	804.4	317	608.4	223
383	339	**BELL & HOWELL** Skokie, Ill.	726.9	(14.8)	61.4	255	86.5	746.9	332	324.6	322
384	400	**HILLENBRAND INDUSTRIES** Batesville, Ind.[21]	724.6	13.0	57.4	263	13.7	660.5	358	312.4	329
385	410	**OCEAN SPRAY CRANBERRIES** Plymouth, Mass.[24]	722.7	15.8	N.A.		—	417.4	435	149.0	428
386	•	**NEWELL** Freeport, Ill.[47]	719.7	79.3	37.2	318	55.0	842.0	311	354.6	301
387	374	**INSILCO** Meriden, Conn.	718.3¶	(3.6)	(10.7)	438	—	653.6	363	300.3	335
388	403	**MEDIA GENERAL** Richmond	715.3	12.7	42.9	304	150.9	829.3	313	348.4	307
389	414	**ROPER** Augusta, Ga.[15]	714.1	16.4	19.9	384	37.0	250.2	481	81.0	457
390	418	**UNIVERSAL FOODS** Milwaukee[5]	709.9	17.8	24.8	361	60.7	391.7	445	183.0	408
391	382	**DENNISON MANUFACTURING** Framingham, Mass.	708.0	1.0	34.4	328	13.7	490.7	409	234.4	370
392	430	**GEORGIA GULF** Atlanta	707.4	21.3	81.9**	211	109.2	308.6	471	142.5	430
393	423	**KAMAN** Bloomfield, Conn.	707.0	20.3	24.1	366	19.2	372.3	451	157.3	423
394	364	**ALLIS-CHALMERS** West Allis, Wis.	698.6¶	(9.4)	(29.3)	453	—	409.0	438	(4.2)	478
395	447	**SHAW INDUSTRIES** Dalton, Ga.[3]	694.2	26.2	28.5	344	18.5	362.8	456	152.6	425
396	393	**LORAL** New York[41]	690.0	4.0	57.5	262	8.4	1,466.9	219	362.9	297
397	421	**CRAY RESEARCH** Minneapolis	687.3	15.2	147.1	152	17.8	902.3	294	610.6	220
398	•	**HARLEY-DAVIDSON** Milwaukee	685.4	132.1	21.2**	379	335.5	382.8	447	62.9	468
399	397	**EAGLE-PICHER INDUSTRIES** Cincinnati[21]	677.2	4.5	40.0	314	3.0	498.1	408	206.8	389
400	408	**AG PROCESSING** Omaha[24]	676.3	8.1	N.A.		—	159.1	493	75.7	459

The definitions, explanations, and footnotes underlying the figures in this directory are on page D33.

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MARKET VALUE		PROFITS AS PERCENT OF						EARNINGS PER SHARE				TOTAL RETURN TO INVESTORS				INDUSTRY TABLE NUMBER	RANK
		SALES		ASSETS		STOCKHOLDERS' EQUITY			% change from 1986	1977-87 annual growth rate		1987		1977-87 annual average			
$ Millions	Rank	%	Rank	%	Rank	%	Rank	1987/$		%	Rank	%	Rank	%	Rank		
628.2	306	—		—		—		(67.53)	—	—		160.3	6	10.2	312	19	**351**
863.7	263	5.9	178	7.7	171	11.8	287	2.39	10.1	14.1	89	31.1	86	26.7	49	15	**352**
612.8	308	—		—		—		(1.82)	—	—		(36.8)	423	7.7	339	18	**353**
1,468.1	187	9.5	69	10.7	67	18.0	143	2.03	25.3	4.9	236	25.3	112	14.3	246	5	**354**
1,274.2	200	10.2	60	8.7	125	14.8	202	2.81	13.8	10.1	155	(9.8)	326	15.7	229	22	**355**
1,476.4	184	28.4	4	18.3	10	46.7	6	6.96**	(13.9)	—		22.7	121	27.0	45	5	**356**
581.8	312	—		—		—		(3.35)	—	—		7.9	206	14.6	242	11	**357**
477.4	340	6.6	154	7.8	163	19.3	112	4.69	64.6	11.5	132	13.4	165	20.9	131	14	**358**
N.A.		—		—		—		N.A.	—	—		—		—		15	**359**
751.7	284	9.4	74	12.5	44	22.0	72	5.24	13.9	24.6	15	(15.3)	357	33.6	11	6	**360**
1,045.7	233	3.0	341	1.5	401	4.2	397	0.80	—	(11.3)	342	29.3	97	11.0	302	16	**361**
868.4	261	5.1	214	9.3	111	16.2	177	1.02	0.7	11.4	134	4.1	242	18.6	171	15	**362**
N.A.		—		—		—		N.A.	—	—		—		—		5	**363**
396.6	364	1.6	394	3.4	352	5.5	383	0.92‡	(19.8)	2.4	276	(3.6)	294	13.7	258	10	**364**
268.0	398	2.4	373	2.9	366	18.4	136	0.85	12.6	(3.5)	321	37.4	75	20.5	141	17	**365**
672.6	296	3.5	310	6.9	205	15.6	189	1.18	(6.3)	10.4	151	24.0	116	29.6	24	8	**366**
632.2	305	3.3	331	2.3	384	3.1	406	1.02	25.9	—		49.2	41	—		16	**367**
241.1	407	2.8	356	5.0	301	10.5	319	2.15	22.2	3.4	262	(16.8)	359	22.2	105	11	**368**
455.6	347	3.4	323	5.9	246	9.0	349	1.84	(22.0)	(2.2)	314	(20.1)	374	5.7	355	11	**369**
636.0	304	5.5	200	7.1	199	14.6	210	1.72	27.4	7.7	190	7.6	211	17.0	205	5	**370**
1,582.9	173	9.0	80	17.2	13	24.3	55	3.37	32.2	10.5	149	55.6	31	16.7	214	8	**371**
443.2	350	3.4	324	4.6	315	9.1	347	2.12	(8.6)	5.7	221	17.8	146	18.1	177	17	**372**
636.3	303	8.2	104	8.4	136	20.4	92	2.92	57.0	21.2	26	26.8	107	33.3	14	11	**373**
264.2	401	2.6	361	2.6	376	23.1	68	1.45	57.6	—		50.3	38	—		4	**374**
45.5	442	—		—		—		(1.67)	—	—		(68.8)	441	—		24	**375**
491.0	335	7.5	123	3.8	343	8.8§	351	3.04	(56.6)	1.3	290	(29.9)	413	7.9	338	4	**376**
N.A.		—		—		—		N.A.	—	—		—		—		27	**377**
1,642.6	171	11.7	39	14.4	28	19.4	110	2.13	34.0	14.1	88	38.2	73	21.3	125	14	**378**
456.2	346	3.5	311	3.3	354	11.1	304	0.11‡	(89.3)	(15.5)	351	(46.4)	431	(10.1)	395	6	**379**
168.6	418	1.9	385	5.7	261	13.6	233	1.81	(11.6)	6.9	204	(27.2)	402	11.5	291	8	**380**
1,882.5	155	14.3	24	12.2	48	16.2	174	2.83	23.6	8.5	177	22.2	123	10.8	305	23	**381**
1,503.6	180	12.9	32	11.9	53	15.7	186	4.40	9.5	13.2	102	12.2	173	27.7	34	9	**382**
649.9	300	8.4	94	8.2	147	18.9	122	5.78	86.5	10.9	142	63.4	23	22.8	90	20	**383**
1,143.7	216	7.9	109	8.7	126	18.4	135	1.51	15.7	16.0	62	7.6	210	29.7	22	14	**384**
N.A.		—		—		—		N.A.	—	—		—		—		8	**385**
434.0	351	5.2	213	4.4	327	10.5	317	2.75	26.7	11.2	137	7.0	218	22.3	104	14	**386**
421.4	358	—		—		—		(0.50)	—	—		(18.2)	368	12.3	279	5	**387**
1,322.4	194	6.0	175	5.2	285	12.3	271	1.50	150.0	12.7	110	72.3	18	28.4	30	20	**388**
406.8	363	2.8	355	7.9	154	24.5	52	2.12	55.3	19.1	34	(13.6)	351	23.8	77	11	**389**
361.6	373	3.5	306	6.3	228	13.6	235	2.10	47.9	5.3	228	14.3	160	14.1	250	8	**390**
417.5	359	4.9	227	7.0	202	14.7	207	2.19	12.9	4.4	244	(1.4)	283	17.3	196	9	**391**
817.4	268	11.6	43	26.5	3	57.4§	2	5.61**	132.8	—		182.9	3	—		5	**392**
272.0	397	3.4	320	6.5	218	15.3	192	1.37	17.8	13.4	97	(5.7)	304	23.4	83	1	**393**
16.3	446	—		—		—		(1.35)	—	—		(57.1)	439	(24.8)	400	11	**394**
298.2	386	4.1	273	7.9	161	18.7	126	1.70	20.6	15.3	73	(18.5)	370	24.0	76	24	**395**
956.1	251	8.3	97	3.9	340	15.8	184	2.35	6.3	14.9	80	(17.1)	361	21.6	120	7	**396**
2,508.4	113	21.4	7	16.3	16	24.1	56	4.65	16.5	47.7	5	(12.5)	345	42.7	5	6	**397**
127.0	426	3.1	340	5.5	269	33.7	23	3.27**	251.6	—		23.8	117	—		27	**398**
341.2	380	5.9	179	8.0	151	19.3	111	3.70	(2.6)	3.7	257	(30.4)	415	7.2	344	17	**399**
N.A.		—		—		—		N.A.	—	—		—		—		8	**400**

THE FORTUNE 500
LARGEST U.S. INDUSTRIAL CORPORATIONS

RANK		COMPANY	SALES		PROFITS			ASSETS		STOCKHOLDERS' EQUITY	
1987	1986		$ Millions	% change from 1986	$ Millions	Rank	% change from 1986	$ Millions	Rank	$ Millions	Rank
401	419	**CHESAPEAKE** Richmond	675.7	12.7	30.2	341	120.4	590.7	376	238.6	365
402	433	**COOPER TIRE & RUBBER** Findlay, Ohio	665.8	15.3	30.7	339	33.3	413.3	437	221.6	376
403	388	**JOY TECHNOLOGIES** Pittsburgh[9]	664.5¶,[10]	(4.1)	N.A.		—	869.9	303	19.0	475
404	407	**ROHR INDUSTRIES** Chula Vista, Calif.[15]	663.4	6.0	26.9	349	(43.2)	706.6	340	345.8	308
405	445	**STANDARD REGISTER** Dayton	659.7	18.4	40.5	313	24.1	425.2	432	271.5	351
406	427	**LEGGETT & PLATT** Carthage, Mo.	649.2	10.9	37.5	317	8.4	384.3	446	209.5	386
407	426	**PITTWAY** Northbrook, Ill.	649.1	10.8	32.4	333	17.2	559.4	382	311.3	330
408	448	**C.R. BARD** Murray Hill, N.J.	641.3	17.0	62.3	251	21.6	487.6	410	301.0	334
409	417	**INTERGRAPH** Huntsville, Ala.	641.1	5.8	69.9	235	(0.7)	704.0	342	567.2	237
410	431	**JOSTENS** Minneapolis[3]	638.1	9.7	44.7	300	10.9	360.7	458	112.9	447
411	422	**NERCO** Portland, Ore.	632.3	6.3	60.1	257	4.5	977.1	280	351.1	306
412	428	**BAIRNCO** New York	630.2	7.7	28.2	346	25.4	441.8	427	213.1	382
413	432	**PULLMAN** Princeton, N.J.[5,48]	628.6	8.3	17.6	399	9.0	708.4	339	178.1	411
414	192	**VALERO ENERGY** San Antonio	628.5	(66.6)	12.9‡	405	—	964.7	284	492.5	255
415	441	**COOPER COS.** Palo Alto, Calif.[11,49]	627.5	12.0	52.0‡	283	477.8	1,357.8	231	257.4	359
416	440	**AMETEK** New York	620.1	9.1	41.2	309	12.5	538.4	392	252.9	361
417	420	**WESTMORELAND COAL** Philadelphia	616.7	3.0	(43.1)	458	—	369.9	453	140.2	431
418	434	**BUTLER MANUFACTURING** Kansas City, Mo.	615.0	6.6	3.7**	426	2.7	270.1	480	115.5	446
419	•	**MAGNETEK** Los Angeles[3]	608.9	123.0	4.9	421	(8.0)	483.5	411	9.8	476
420	405	**WARNACO GROUP** Los Angeles	608.9	3.2	(10.8)	439	—	629.3	369	(34.8)	482
421	446	**VISTA CHEMICAL** Houston[5]	608.9	10.7	(3.7)‡	436	—	500.1	407	160.5	419
422	442	**HANDY & HARMAN** New York	607.5	8.7	7.7	416	—	462.0	419	116.3	445
423	•	**HENLEY MANUFACTURING** Hampton, N.H.[45]	605.3	(7.8)	19.4	388	—	686.9	348	392.6	289
424	416	**CALMAT** Los Angeles	602.1	(0.6)	78.1	217	77.0	662.8	356	437.6	271
425	415	**THORN APPLE VALLEY** Southfield, Mich.[7]	601.9	(1.5)	1.0**	432	—	102.1	495	29.2	474
426	•	**AVERY** New York[5]	600.3	5,705.9	(31.7)	454	—	1,348.7	232	70.3	462
427	453	**MEREDITH** Des Moines[3]	598.7	12.3	33.9	329	(28.1)	565.7	379	330.0	317
428	468	**COLEMAN** Wichita	598.5	19.3	19.2	390	10.8	404.2	442	184.3	407
429	•	**OHIO MATTRESS** Cleveland[21]	598.1	101.1	23.4	370	101.0	525.7	399	237.7	366
430	•	**MARION LABORATORIES** Kansas City, Mo.[3]	597.4	49.6	96.9	191	76.0	453.7	421	303.3	333
431	457	**H.B. FULLER** St. Paul[21]	597.1	13.0	25.8	358	36.4	329.6	466	161.4	418
432	451	**PHILIPS INDUSTRIES** Dayton[41]	593.0	10.2	33.0	332	10.9	315.9	469	178.9	410
433	398	**TEXAS INDUSTRIES** Dallas[7]	589.1	(9.1)	1.3	431	(94.3)	678.8	351	189.1	402
434	343	**MITCHELL ENERGY** The Woodlands, Tex.[29]	587.9	(30.3)	8.4	415	(82.5)	2,060.7	169	569.1	236
435	459	**CALIFORNIA & HAWAIIAN SUGAR** Concord, Calif.	587.5	11.6	N.A.		—	182.0	492	47.6	470
436	437	**LESLIE FAY** New York	582.0	1.5	19.7**	386	5.9	305.4	474	111.9	449
437	443	**HUBBELL** Orange, Conn.	581.1	4.0	62.5	250	14.8	468.9	417	354.4	302
438	•	**DIXIE YARNS** Chattanooga	580.5	93.0	26.3	353	96.5	355.8	460	205.6	390
439	456	**HERMAN MILLER** Zeeland, Mich.[7]	573.5	7.9	33.3	331	(12.0)	346.9	461	212.5	384
440	493	**XIDEX** Palo Alto, Calif.[3]	572.8	32.5	(44.5)	460	—	675.7	353	387.2	292
441	438	**KELLWOOD** St. Louis[13]	571.9	(0.2)	25.3	360	31.8	334.3	463	157.8	422
442	•	**SHAKLEE** San Francisco	571.8	43.7	23.5	369	(60.3)	413.7	436	252.2	362
443	475	**LONGVIEW FIBRE** Longview, Wash.[11]	569.4	16.8	65.2	244	94.6	541.1	391	280.9	347
444	439	**LIQUID AIR** Walnut Creek, Calif.[50]	566.0	(0.8)	36.6	319	5.5	751.6	330	294.9	338
445	463	**UST** Greenwich, Conn.[51]	564.5	10.3	130.9	167	25.9	549.0	386	401.1	282
446	471	**COMPUTERVISION** Bedford, Mass.	564.0	14.0	19.5	387	—	466.8	418	200.1	396
447	•	**REYNOLDS & REYNOLDS** Dayton[5]	562.7	39.3	21.2	378	(11.0)	381.1	449	193.1	400
448	378	**NATIONAL COOP. REFINERY** McPherson, Kans.[3]	561.4	(21.6)	N.A.		—	335.5	462	148.4	429
449	•	**HARVARD INDUSTRIES** St. Louis[5]	558.8	77.8	18.7	394	55.3	332.7	464	66.2	466
450	345	**NEWMONT MINING** New York	558.5	(33.0)	340.9	65	359.4	1,964.3	177	(458.2)	488

The definitions, explanations, and footnotes underlying the figures in this directory are on page D33.

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MARKET VALUE		PROFITS AS PERCENT OF						EARNINGS PER SHARE				TOTAL RETURN TO INVESTORS				INDUSTRY TABLE NUMBER	RANK
		SALES		ASSETS		STOCKHOLDERS' EQUITY			% change from 1986	1977-87 annual growth rate		1987		1977-87 annual average			
$ Millions	Rank	%	Rank	%	Rank	%	Rank	1987/$		%	Rank	%	Rank	%	Rank		
408.7	362	4.5	252	5.1	293	12.7	258	1.47	116.2	9.1	168	0.3	269	18.0	180	9	401
347.2	378	4.6	242	7.4	185	13.8	225	3.02	32.5	11.9	126	17.8	145	29.0	26	21	402
N.A.		—		—		—		N.A.	—	—		—		—		11	403
424.3	357	4.1	277	3.8	346	7.8	362	1.53	(43.3)	30.7	8	(44.4)	429	16.9	207	1	404
715.5	290	6.1	169	9.5	104	14.9	198	1.36	12.4	28.1	11	12.9	167	32.3	18	20	405
465.0	341	5.8	185	9.8	94	17.9	144	2.28	10.1	15.4	70	(13.5)	350	22.7	97	10	406
394.7	365	5.0	219	5.8	251	10.4	323	7.05	17.1	1.5	287	(22.0)	379	12.7	270	7	407
1,105.3	222	9.7	64	12.8	38	20.7	87	2.14	24.4	19.3	33	(3.8)	295	24.3	70	22	408
1,557.5	174	10.9	49	9.9	89	12.3	270	1.23	(2.4)	—		45.6	49	—		6	409
687.9	292	7.0	138	12.4	45	39.6	11	1.22	27.7	13.8	90	1.8	262	21.9	115	12	410
500.3	331	9.5	71	6.2	237	17.1	163	1.80	4.0	—		20.3	131	—		16	411
333.5	381	4.5	251	6.4	224	13.3	239	2.68	21.8	14.8	82	(12.4)	343	26.1	55	7	412
272.6	396	2.8	354	2.5	378	9.9	334	0.42	5.0	—		(37.4)	424	—		17	413
155.3	420	2.1	377	1.3	408	2.6§	407	0.06‡	—	—		(27.3)	403	—		18	414
302.9	384	8.3	98	3.8	344	20.2§	94	2.28‡	456.1	--		(50.3)	434	—		22	415
724.8	287	6.6	151	7.6	173	16.3	173	0.94	13.3	8.5	176	11.7	177	17.9	185	22	416
152.6	421	—		—		—		(5.22)	—	—		(6.9)	311	(6.2)	392	16	417
142.2	425	0.6	419	1.4	406	3.2	402	0.77**	8.5	(13.2)	348	14.7	157	8.6	332	14	418
N.A.		0.8	414	1.0	415	49.5§	5	4.61	—	—		—		—		7	419
N.A.		—		—		—		(8.13)	—	—		—		—		2	420
810.7	269	—		—		—		(0.25)‡	—	—		142.5	7	—		5	421
242.0	406	1.3	404	1.7	399	6.6	373	0.55	—	(3.9)	327	(17.8)	366	13.9	254	15	422
252.2	404	3.2	334	2.8	368	4.9	388	1.86	—	—		—		—		11	423
945.7	252	13.0	31	11.8	57	17.8	145	2.53	75.7	15.1	78	32.3	84	17.3	197	4	424
N.A.		0.2	432	1.0	413	3.6	401	0.29**	—	(10.1)	337	—				8	425
N.A.		—		—		—		(2.63)	—	—		—		—		5	426
535.7	320	5.7	191	6.0	239	10.3	326	1.77	(28.9)	10.1	156	(6.9)	309	23.1	88	20	427
265.3	400	3.2	335	4.7	311	10.4	322	2.72	9.7	2.8	271	7.7	209	13.4	262	11	428
349.5	377	3.9	283	4.4	325	9.8	335	1.15	59.7	18.8	36	(18.3)	369	27.0	47	10	429
3,388.1	90	16.2	16	21.4	7	32.0	30	0.61	64.9	23.0	19	30.5	91	42.2	6	19	430
345.3	379	4.3	266	7.8	165	16.0	181	2.69	34.5	14.6	85	46.0	48	25.9	59	5	431
571.4	315	5.6	195	10.5	70	18.5	133	1.17	8.8	14.5	86	25.7	111	32.6	17	14	432
282.2	393	0.2	431	0.2	431	0.7	423	0.00	—	—		39.0	68	18.3	174	15	433
491.1	334	1.4	400	0.4	425	1.5	418	0.18	(82.2)	(11.1)	341	(7.2)	312	7.5	343	16	434
N.A.		—		—		—		N.A.	—	—		—		—		8	435
119.3	429	3.4	322	6.5	220	17.6	150	1.03**	(6.4)	68.1	2	(53.2)	435	—		2	436
867.3	262	10.8	53	13.3	33	17.6§	151	2.39	12.7	12.1	121	8.9	200	22.1	109	7	437
229.8	410	4.5	248	7.4	186	12.8	255	2.42	8.0	13.6	93	(6.3)	307	—		24	438
636.7	302	5.8	184	9.6	102	15.7	187	1.35	(11.8)	24.1	17	(1.9)	287	27.4	39	10	439
278.0	395	—		—		—		(1.03)	—	—		(46.9)	432	—		6	440
291.1	389	4.4	262	7.6	178	16.0	179	2.20	8.9	5.7	222	(9.3)	321	15.2	235	2	441
293.1	388	4.1	274	5.7	258	9.3	343	1.77	(60.5)	(2.5)	316	(6.9)	310	5.1	360	8	442
533.6	321	11.4	44	12.0	49	23.2	65	5.87	94.4	9.9	158	29.9	94	14.9	238	9	443
446.8	349	6.5	160	4.9	304	12.4§	265	2.57	6.2	(0.7)	303	(16.9)	360	5.9	353	5	444
1,690.0	168	23.2	6	23.8	4	32.6	28	2.25	21.0	17.1	48	27.4	105	24.4	67	25	445
N.A.		3.5	315	4.2	335	9.7	338	0.67	—	16.5	57	3.7	245	25.9	58	6	446
215.8	413	3.8	293	5.6	266	11.0	309	1.91	(21.7)	6.1	212	(48.9)	434	8.7	331	20	447
N.A.		—		—		—		N.A.	—	—		—		—		18	448
145.6	423	3.3	330	5.6	264	28.2	38	1.06	55.9	—		36.3	77	—		17	449
2,339.1	126	61.0	1	17.4	12	—		5.30	334.4	56.5	4	86.8	15	24.4	68	15	450

THE FORTUNE 500
LARGEST U.S. INDUSTRIAL CORPORATIONS

RANK		COMPANY	SALES		PROFITS			ASSETS		STOCKHOLDERS' EQUITY	
1987	1986		$ Millions	% change from 1986	$ Millions	Rank	% change from 1986	$ Millions	Rank	$ Millions	Rank
451	425	**H.H. ROBERTSON** Pittsburgh	[illegible]	(5.2)	2.5	429	—	324.0	467	107.5	450
452	435	**HARTE-HANKS COMMUNICATIONS** San Antonio	[illegible]	(3.6)	(32.5)‡	455	—	787.4	322	(20.3)	480
453	466	**HON INDUSTRIES** Muscatine, Iowa	[illegible]	10.3	24.8	364	(15.3)	248.1	482	126.4	441
454	•	**APOLLO COMPUTER** Chelmsford, Mass.	[illegible]	41.4	21.7	375	132.5	447.0	424	225.0	374
455	452	**OXFORD INDUSTRIES** Atlanta[7]	553.4	3.7	10.6	412	3.0	230.5	487	130.5	438
456	477	**SCI SYSTEMS** Huntsville, Ala.[3]	552.9	17.6	16.0	401	15.8	435.8	429	133.0	435
457	465	**COMMERCE CLEARING HOUSE** Riverwoods, Ill.	551.5	9.1	52.8	279	11.0	522.2	401	188.2	404
458	473	**STANADYNE** Windsor, Conn.	543.6	10.3	41.9	307	98.1	419.3	433	247.0	363
459	332	**M/A-COM** Burlington, Mass.[5]	542.9¶	(38.7)	(35.4)	456	—	581.7	377	268.7	353
460	479	**CARLISLE** Cincinnati	542.8	16.5	18.8	393	(4.4)	308.6	470	185.8	405
461	•	**GUILFORD MILLS** Greensboro, N.C.[3]	539.1	29.5	23.9	367	25.7	381.4	448	190.7	401
462	476	**TAMBRANDS** Lake Success, N.Y.	538.9	10.7	76.6	220	10.8	408.2	440	313.9	328
463	•	**SUN MICROSYSTEMS** Mountain View, Calif.[3]	537.5	155.8	36.3	320	203.8	533.0	396	240.7	364
464	•	**JEPSON** Elmhurst, Ill.	530.1	18.6	18.3	396	14.2	306.1	473	66.6	465
465	485	**MILLIPORE** Bedford, Mass.	528.7	19.3	47.7	294	22.1	479.8	414	330.9	315
466	454	**RICELAND FOODS** Stuttgart, Ark.[24]	524.6	(1.4)	25.7	359	8.0	207.6	490	138.7	432
467	•	**FABERGE** New York[29]	524.4	14.3	25.9	357	55.4	365.0	455	112.0	448
468	470	**SUN-DIAMOND GROWERS** Pleasanton, Calif.[15]	523.2	5.4	N.A.		—	234.8	486	79.3	458
469	•	**TORO** Bloomington, Minn.[15]	521.1	28.1	17.0	400	9.9	241.9	485	72.0	460
470	399	**BIG THREE INDUSTRIES** Houston[50]	518.1	(19.8)	51.0	287	—	893.0	297	491.3	256
471	•	**HOMESTAKE MINING** San Francisco	516.2	65.5	146.4	153	548.5	915.4	293	702.9	198
472	487	**ALBERTO CULVER** Melrose Park, Ill.[5]	514.5	17.2	18.2	398	110.4	271.8	479	132.9	436
473	462	**PHILLIPS-VAN HEUSEN** New York[29]	514.4	(6.5)	20.1	382	26.1	245.3	484	164.5	415
474	444	**GEORGIA KRAFT** Rome, Ga.	511.0	(8.3)	87.1	204	215.8	735.2	334	498.0	254
475	464	**AMERICAN MAIZE-PRODUCTS** Stamford, Conn.	506.8	(0.5)	12.7	408	30.1	401.7	443	153.5	424
476	469	**COLECO INDUSTRIES** West Hartford, Conn..	504.5	0.8	(105.4)	470	—	535.6	395	(84.3)	483
477	449	**FOXBORO** Foxboro, Mass.	504.4	(7.3)	(96.9)	468	—	428.1	430	188.4	403
478	•	**LUKENS** Coatesville, Pa.	502.5	24.0	21.7	376	146.9	322.9	468	151.2	427
479	•	**MEDTRONIC** Minneapolis[13]	502.0	21.2	73.8	226	38.2	559.7	381	387.0	293
480	•	**GROW GROUP** New York[3]	501.7	37.0	1.3	430	(83.1)	331.4	465	64.5	467
481	•	**GREAT LAKES CHEMICAL** West Lafayette, Ind.	501.0	66.8	55.5	273	107.1	577.1	378	392.6	290
482	498	**ALLIED PRODUCTS** Chicago	496.9	18.1	(2.5)	434	—	443.8	426	151.9	426
483	478	**SCIENTIFIC-ATLANTA** Atlanta[3]	495.3	5.6	24.3	365	—	287.5	477	201.6	393
484	•	**ATARI** Sunnyvale, Calif.	493.2	91.1	57.4**	264	29.0	523.3	400	167.7	414
485	491	**TRINITY INDUSTRIES** Dallas[41]	491.1	13.1	4.0‡	424	359.6	505.4	405	162.5	417
486	•	**AFFILIATED PUBLICATIONS** Boston	490.1	17.9	201.2	117	204.4	532.3	397	324.1	323
487	488	**NOXELL** Hunt Valley, Md.	489.5	11.5	43.6	303	17.5	294.4	475	212.7	383
488	•	**AFG INDUSTRIES** Irvine, Calif.	488.4	20.3	58.4	260	9.4	508.7	403	227.3	373
489	413	**CAMERON IRON WORKS** Houston[3]	485.0	(21.3)	(110.2)	471	—	754.4	329	335.7	314
490	461	**CARPENTER TECHNOLOGY** Reading, Pa.[3]	480.5	(7.1)	4.5	422	(41.6)	601.7	374	300.2	336
491	489	**RUSSELL** Alexander City, Ala.	479.9	9.7	46.3	296	7.1	445.3	425	279.6	349
492	•	**KIMBALL INTERNATIONAL** Jasper, Ind.[3]	477.1	21.1	29.9	342	14.6	289.1	476	201.2	394
493	•	**ENVIRODYNE INDUSTRIES** Chicago	475.7	50.2	38.7	316	123.1	425.4	431	128.8	439
494	497	**BASSETT FURNITURE INDUSTRIES** Bassett, Va.[21]	475.0	12.7	22.3	373	14.4	286.9	478	259.0	358
495	•	**SPRAGUE TECHNOLOGIES** Greenwich, Conn.	470.0	4.7	3.6	427	—	473.5	416	342.0	312
496	•	**CLEVELAND-CLIFFS** Cleveland	467.0¶	57.6	12.7	407	—	656.7	360	395.4	287
497	492	**STANDARD PRODUCTS** Cleveland[3]	464.9	7.3	31.5	337	16.0	226.0	488	127.4	440
498	•	**A. SCHULMAN** Akron[24]	463.8	19.6	19.8	385	30.5	214.7	489	125.8	442
499	•	**WESTERN DIGITAL** Irvine, Calif.[3]	462.5	54.0	48.2**	292	108.1	307.8	472	201.9	392
500	•	**M.A. HANNA** Cleveland	459.4	252.4	36.3	321	—	1,000.7	277	398.7	284
		TOTALS	1,879,506.4		90,556.3			1,705,657.1		685,119.2	

The definitions, explanations, and footnotes underlying the figures in this directory are on page D33.

451-500

MARKET VALUE		PROFITS AS PERCENT OF						EARNINGS PER SHARE				TOTAL RETURN TO INVESTORS				INDUSTRY TABLE NUMBER	RANK
		SALES		ASSETS		STOCKHOLDERS' EQUITY			% change from 1986	1977-87 annual growth rate		1987		1977-87 annual average			
$ Millions	Rank	%	Rank	%	Rank	%	Rank	1987/$		%	Rank	%	Rank	%	Rank		
92.4	436	0.5	423	0.8	418	2.4	410	0.38	—	(13.4)	349	23.2	118	4.6	364	15	451
N.A.		—		—		—		N.A.	—	—		—		—		20	452
356.0	375	4.5	256	10.0	84	19.6	105	1.24	(13.0)	9.1	170	9.0	199	19.7	156	10	453
528.6	324	3.9	281	4.9	305	9.6	339	0.60	122.2	—		(22.5)	383	—		6	454
118.4	430	1.9	384	4.6	317	8.1	359	0.95	2.2	(1.1)	306	(18.7)	371	20.3	146	2	455
300.2	385	2.9	348	3.7	348	12.0	281	0.77	15.5	27.2	12	12.8	169	22.7	96	6	456
1,154.4	213	9.6	68	10.1	77	28.1	39	2.93	11.0	18.3	42	2.9	251	27.0	48	20	457
791.0	278	7.7	113	10.0	83	17.0	166	2.90	97.7	10.7	144	10.7	183	14.7	241	14	458
285.3	392	—		—		—		(1.06)	—	—		(24.4)	387	12.7	271	7	459
254.6	403	3.5	313	6.1	238	10.1	330	2.25	4.2	8.4	181	0.4	268	21.9	116	21	460
289.7	391	4.4	260	6.3	230	12.5	262	2.26	17.1	21.4	23	16.5	149	34.1	10	24	461
1,251.9	203	14.2	25	18.8	8	24.4	53	3.45	10.6	8.1	184	1.2	266	19.3	164	9	462
1,259.7	201	6.8	146	6.8	207	15.1	196	1.11	141.3	—		39.6	65	—		6	463
165.8	419	3.4	316	6.0	243	27.5	40	1.01	—	—		—		—		11	464
1,089.6	224	9.0	78	9.9	88	14.4	212	1.70	21.4	11.5	129	20.1	132	13.0	267	22	465
N.A.		4.9	225	12.4	46	18.5	130	N.A.	—	—		—		—		8	466
N.A.		4.9	221	7.1	198	23.1§	67	N.A.	—	—		—		—		23	467
N.A.		—		—		—		N.A.	—	—		—		—		8	468
190.0	415	3.3	332	7.0	201	23.7§	63	1.52	13.4	7.7	192	6.3	226	11.3	293	11	469
N.A.		9.8	62	5.7	256	10.4	324	N.A.	—	—		—		—		5	470
1,509.7	179	28.4	5	16.0	17	20.8	85	1.51	556.5	2.9	269	39.8	63	13.4	261	16	471
431.8	352	3.5	304	6.7	210	13.7	232	1.28	88.2	21.9	22	7.6	212	26.0	56	23	472
117.5	431	3.9	282	8.2	149	12.2	274	3.18	25.2	15.2	75	(37.5)	425	22.0	111	2	473
N.A.		17.0	11	11.8	55	17.5	154	N.A.	—	—		—		—		9	474
101.4	433	2.5	366	3.2	358	8.2	358	2.10	15.4	3.6	260	(32.8)	421	9.8	319	8	475
44.4	443	—		—		—		(6.08)	—	—		(53.7)	438	3.5	373	26	476
360.2	374	—		—		—		(7.87)	—	—		(2.6)	293	3.3	374	22	477
229.4	411	4.3	267	6.7	208	14.3	214	3.87	125.0	5.2	233	235.5	1	17.9	184	15	478
1,278.0	198	14.7	21	13.2	35	19.1	119	5.25	43.8	18.3	41	22.8	119	27.7	36	22	479
88.5	439	0.3	427	0.4	427	2.0	413	0.04	(93.9)	(22.9)	356	(39.7)	426	9.8	320	5	480
1,045.9	232	11.1	47	9.6	99	14.1	220	3.24	81.0	14.9	81	51.7	34	22.0	114	5	481
92.1	437	—		—		—		(0.77)	—	—		(60.4)	440	4.4	370	11	482
369.4	370	4.9	226	8.4	134	12.0	279	1.04	—	14.6	84	2.0	261	11.9	285	7	483
486.2	337	11.6	42	11.0	61	34.3	19	0.99**	110.6	—		44.6	53	—		6	484
503.1	329	0.8	413	0.8	417	2.5	409	0.25‡	400.0	(12.4)	346	59.8	27	19.9	153	14	485
2,095.1	140	41.0	2	37.8	2	62.1	1	5.73	209.7	39.5	6	63.6	22	44.8	4	20	486
940.3	254	8.9	83	14.8	24	20.5	91	1.08	16.8	16.6	56	2.6	255	29.2	25	23	487
763.3	282	11.9	37	11.5	58	25.7	46	2.32	3.9	81.7	1	41.0	61	45.7	3	4	488
530.0	323	—		—		—		(3.62)	—	—		12.6	172	1.2	380	11	489
413.0	360	0.9	411	0.7	420	1.5	417	0.50	(41.9)	(17.4)	352	47.3	44	12.4	275	15	490
576.0	313	9.7	67	10.4	72	16.6	169	1.17	8.3	15.5	68	(26.9)	401	25.7	60	24	491
429.3	355	6.3	167	10.3	74	14.8	201	2.81	15.2	11.1	139	27.1	106	22.4	102	10	492
372.0	369	8.1	105	9.1	118	30.0	36	2.12	99.1	—		49.2	42	27.1	43	21	493
289.8	390	4.7	235	7.8	170	8.6	353	2.65	14.2	4.8	237	(10.3)	331	13.6	260	10	494
244.8	405	0.8	415	0.8	419	1.1	420	0.18	—	—				—		7	495
326.6	382	2.7	358	1.9	393	3.2	403	0.57	—	(12.4)	345	57.0	29	(2.0)	387	16	496
296.0	387	6.8	145	13.9	29	24.8	51	3.46	18.5	16.9	52	(23.7)	385	28.4	29	21	497
372.8	368	4.3	269	9.2	112	15.7	185	2.21	29.0	16.9	51	36.0	79	36.7	7	5	498
411.4	361	10.4	55	15.7	19	23.9	61	1.78**	64.8	—		(12.2)	342	—		7	499
382.6	367	7.9	110	3.6	350	9.1	346	2.47	—	(7.0)	330	3.3	249	(2.7)	388	5	500
1,272,278.5																	

THE FORTUNE 500

DEFINITIONS AND EXPLANATIONS

SALES

All companies on the list must have derived more than 50% of their sales from manufacturing and/or mining. Sales include rental and other revenues but exclude dividends, interest, and other nonoperating revenues. Sales of subsidiaries are included if they are consolidated. Sales from discontinued operations are included if these figures are published. If the sales are at least 10% higher for this reason, there is a symbol (¶) next to the sales figure. All figures are for the year ended December 31, 1987, unless otherwise noted. Sales figures do not include excise taxes collected by manufacturers, and so the figures for some corporations—most of which sell gasoline, liquor, or tobacco—may be lower than those published by the corporations themselves. If they are at least 5% lower for this reason, there is an asterisk (*) next to the sales figures.

NET INCOME

Net income is shown after taxes and after extraordinary credits or charges if any are shown on the income statement. A double asterisk (**) signifies an extraordinary credit reflecting at least 10% of the net income shown, a double dagger (‡) an extraordinary charge of at least 10%. Figures in parentheses indicate a loss. Cooperatives provide only "net margin" figures, which are not comparable with the net income figures in these listings, and therefore N.A. is shown in that column.

ASSETS

Assets shown are those at the company's fiscal year-end.

STOCKHOLDERS' EQUITY

Stockholders' equity is the sum of capital stock, surplus, and retained earnings at the company's year-end. Redeemable preferred stock is excluded if its redemption is either mandatory or outside the control of the company, except in the case of cooperatives. For purposes of calculating "net income as percent of stockholders' equity," any dividends paid on redeemable preferred stock, if that stock's redemption is either mandatory or outside the control of the company, have been subtracted from the net income figure.

MARKET VALUE

The figure shown was arrived at by multiplying the number of common shares outstanding (at the latest date available) by the price per common share as of March 15, 1988.

EARNINGS PER SHARE

For all companies the figures shown are the primary earnings per share that appear on the company's income statement. Per share earnings for 1986 and 1977 are adjusted for stock splits and stock dividends. They are not restated for mergers, acquisitions, or accounting changes made after 1977. A double asterisk (**) signifies an extraordinary credit reflecting at least 10% of the net income shown, a double dagger (‡) an extraordinary charge of at least 10%. Results are listed as not available (N.A.) if the companies are cooperatives, joint ventures, or wholly owned subsidiaries of other companies, or if the figures were not published in 1977. The growth rate is the average annual growth, compounded. No growth rate is given if the company had a loss in either 1977 or 1987.

TOTAL RETURN TO INVESTORS

Total return to investors includes both price appreciation and dividend yield to an investor in the company's stock. The figures shown assume sales at the end of 1987 of stock owned at the end of 1977 and 1986. It has been assumed that any proceeds from cash dividends, the sale of rights and warrant offerings, and stock received in spinoffs were reinvested when they were paid. Returns are adjusted for stock splits, stock dividends, recapitalizations, and corporate reorganizations as they occur; however, no effort has been made to reflect the cost of brokerage commissions or of taxes. Results are listed as not available (N.A.) if shares are not publicly traded or are traded on only a limited basis. If companies have more than one class of shares outstanding, only the more widely held and actively traded has been considered. Total return percentages shown are the returns received by the hypothetical investor described above. The ten-year figures are annual averages, compounded.

INDUSTRY TABLES

Industry table numbers used in the directory indicate the groups in which companies are placed in "The 500 by Industry, Ranked by 11 Measures," beginning on page D37. Companies are included in the industry that represents the greatest volume of their industrial sales. Industry groups are based on categories established by the U.S. Office of Management and Budget and issued by the Federal Statistical Policy and Standards Office. The median figures in the tables refer only to results of companies in the 500; no attempt has been made to calculate medians in groups with fewer than four companies.

Most of the figures in this FORTUNE 500 Directory were prepared by Sandra L. Kirsch and Mark Alpert, who are responsible for the columns reporting on companies' sales, assets, net income, stockholders' equity, and the industry table numbers. Figures on market value, earnings per share, and total return to investors were prepared by Claudine Knight and Kathleen Smyth.

FOOTNOTES TO THE 500

¶ Includes sales from discontinued operations of at least 10%; see the explanation of "sales" above.
● Indicates that a corporation was not among the 500 in 1986.
N.A. Not available.
* Does not include excise taxes; see the explanation of "sales" above.
** Reflects an extraordinary credit of at least 10%; see the explanations of "net income" and "earnings per share" above.
‡ Reflects an extraordinary charge of at least 10%; see the explanations of "net income" and "earnings per share" above.
§ Dividends paid by company on its mandatory redeemable preferred stock were subtracted from net income in calculating this figure.

1

[1] Figures include American Motors (1986 rank: 113) acquired August 5, 1987.
[2] Owned by Royal Dutch/Shell Group (1986 International 500 rank: 1).
[3] Figures are for fiscal year ended June 30, 1987.
[4] Name changed from Standard Oil June 29, 1987. Owned by British Petroleum (1986 International 500 rank: 2).
[5] Figures are for fiscal year ended September 30, 1987.
[6] Financial subsidiaries would add 25% or more to sales if consolidated.
[7] Figures are for fiscal year ended May 31, 1987.
[8] Figures include Monfort of Colorado (1986 rank: 216) acquired May 13, 1987.
[9] Figures are for fiscal year ended February 28, 1987.

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[10] FORTUNE estimate.
[11] Figures are for fiscal year ended October 31, 1987.
[12] Owned by Philips' Gloeilampenfabrieken (1986 International 500 rank: 11).
[13] Figures are for fiscal year ended April 30, 1987.
[14] Company was formed by the merger of American Hoechst (1986 rank: 210) and Celanese (1986 rank: 134) February 27, 1987. Owned by Hoechst (1986 International 500 rank: 19).
[15] Figures are for fiscal year ended July 31, 1987.
[16] Owned by BASF (1986 International 500 rank: 17).
[17] Owned by Bayer (1986 International 500 rank: 16).
[18] Owned by Hanson Trust (1986 International 500 rank: 94).
[19] Figures include Alumax (1986 rank: 180) acquired November 24, 1986.

20

[20] Figures include Southwest Forest Industries (1986 rank: 394) acquired April 16, 1987.
[21] Figures are for fiscal year ended November 30, 1987.
[22] Owned by Unilever (1986 International 500 rank: 7).
[23] Name changed from National Distillers & Chemical January 1, 1988.
[24] Figures are for fiscal year ended August 31, 1987.
[25] Owned by Petrofina (1986 International 500 rank: 55).
[26] Acquired by Eastman Kodak (rank: 25) February 23, 1988.
[27] Name changed from Kaiser Aluminum & Chemical May 1, 1987.
[28] Name changed from Universal Leaf Tobacco January 1, 1988.
[29] Figures are for fiscal year ended January 31, 1987.

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[30] Owned by Seagram (1986 International 500 rank: 273).
[31] Company was formed by the merger of Baker International (1986 rank: 220) and Hughes Tool (1986 rank: 356) April 3, 1987.
[32] Name changed from Federal Co. Sept. 9, 1987.
[33] Name changed from Sun Chemical May 7, 1987. Figures include Chromalloy American (1986 rank: 352) acquired December 12, 1986.
[34] Owned by Esselte (1986 International 500 rank: 350)
[35] Name changed from Diamond Shamrock April 28, 1987.
[36] Name changed from Armstrong Rubber after reorganization April 10, 1987.
[37] Owned by Montedison (1986 International 500 rank: 52).
[38] Owned by Saint-Gobain (1986 International 500 rank: 38).
[39] Owned by Jefferson Smurfit Group (1986 International 500 rank: 499).

40

[40] Name changed from Cyclops Corp. after reorganization June 30, 1987.
[41] Figures are for fiscal year ended March 31, 1987.
[42] Owned by Household International (1986 Service 500 rank: F19).
[43] Name changed from Farley/Northwest Industries February 26, 1987.
[44] Name changed from Economics Laboratory December 11, 1986.
[45] Owned by Henley Group (1986 Service 500 rank: S17).
[46] Figures include Diamond-Bathurst (1986 rank: 474) acquired August 13, 1987.
[47] Figures include Anchor Hocking (1986 rank: 368) acquired July 2, 1987.
[48] Name changed from Pullman-Peabody February 12, 1987. Figures include Clevite Industries (1986 rank: 484) acquired July 1, 1987.
[49] Name changed from CooperVision June 22, 1987.

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[50] Owned by L'Air Liquide (1986 International 500 rank: 179).
[51] Name changed from United States Tobacco May 5, 1987.

ARRIVALS AND DEPARTURES

NEWCOMERS TO THE 500

	SALES RANK
AFFILIATED PUBLICATIONS	486
AFG INDUSTRIES	488
ALLEGHENY LUDLUM	350
APOLLO COMPUTER	454
ARISTECH CHEMICAL	344
ATARI	484
AVERY	426
COCA-COLA ENTERPRISES	126
DIXIE YARNS	438
ENVIRODYNE INDUSTRIES	493
FABERGE	467
FISHER SCIENTIFIC GROUP	345
GREAT LAKES CHEMICAL	481
GROW GROUP	480
GUILFORD MILLS	461
HARLEY-DAVIDSON	398
HARVARD INDUSTRIES	449
HENLEY MANUFACTURING	423
HOMESTAKE MINING	471
JEPSON	464
KIMBALL INTERNATIONAL	492
KNOLL INTERNATIONAL HOLDINGS	191
MAGNETEK	419
MARION LABORATORIES	430
NEWELL	386
OHIO MATTRESS	429
REYNOLDS & REYNOLDS	447
SCHULMAN (A.)	498
SUN MICROSYSTEMS	463
TORO	469
WESTERN DIGITAL	499

RETURNED TO THE 500*

AMSTED INDUSTRIES (1985: 384)	359
BEATRICE (1985: 26)	42
CLEVELAND-CLIFFS (1960: 440)	496
HANNA (M.A.) (1976: 461)	500
LUKENS (1984: 500)	478
MEDTRONIC (1984: 496)	479
RELIANCE ELECTRIC (1979: 232)	245
SHAKLEE (1984: 476)	442
SPRAGUE TECHNOLOGIES (1966: 465)	495
UNIVERSAL (1981: 306)	184

DISPLACED FROM THE 500

	1986 SALES RANK
ALLEN GROUP	496
ALUMAX [1]	180
AMALGAMATED SUGAR [2]	472
AMERICAN MOTORS [3]	113
ANCHOR HOCKING [4]	368
ANDERSON CLAYTON [5]	292
ATCOR [6]	483
BARNES GROUP	486
CELANESE [7]	134
CHROMALLOY AMERICAN [8]	352
CLEVITE INDUSTRIES [9]	484
COLLINS & AIKMAN [10]	278
CONSTAR INTERNATIONAL	458
DAYCO [11]	327
DIAMOND-BATHURST [12]	474
FIRST CITY INDUSTRIES	401
FOSTER (L.B.)	455
GENESCO [13]	450
HEILEMAN (G.) BREWING [14]	267
HUGHES TOOL [15]	356
KATY INDUSTRIES	499
KENNER PARKER TOYS [16]	467
KIDDE [17]	145
LANCASTER COLONY	495
LEAR SIEGLER [18]	156
MICHIGAN MILK PROD. ASSOC.	494
MONFORT OF COLORADO [19]	216
MOORE MCCORMACK RESOURCES	480
NACCO INDUSTRIES	429
NASHUA [13]	381
NVF [18]	279
REICHHOLD CHEMICALS [20]	367
REXNORD [21]	281
ROBERTSHAW CONTROLS [18]	490
ROCHESTER & PITTSBURGH	500
SHELLER-GLOBE [22]	322
SOUTHWEST FOREST INDUSTRIES [23]	394
STALEY CONTINENTAL [13]	132
TRACOR [18]	404
WINN ENTERPRISES [24]	295
WISCONSIN DAIRIES COOPERATIVE	482

* Figures in parentheses indicate year and sales rank the last time the company was listed.

[1] Acquired by Amax (rank: 124) November 24, 1986.

[2] Acquired by Valhi March 10, 1987.

[3] Acquired by Chrysler (rank: 10) August 5, 1987.

[4] Acquired by Newell (rank: 386) July 2, 1987.

[5] Acquired by Quaker Oats (rank: 93) October 31, 1986.

[6] Acquired by Tyco Laboratories (rank: 297) August 10, 1987.

[7] Merged with American Hoechst to form Hoechst Celanese (rank: 91) February 27, 1987.

[8] Acquired by Sun Chemical (later renamed Sequa) December 23, 1986.

[9] Acquired by Pullman (rank: 413) July 1, 1987.

[10] Acquired by Wickes December 9, 1986.

[11] Acquired by M.A. Hanna (rank: 500) September 1, 1987.

[12] Acquired by Anchor Glass Container (rank: 374) August 13, 1987.

[13] No longer classified as an industrial.

[14] Acquired by Bond Corporation Holdings Ltd. of Perth, Australia, March 10, 1988.

[15] Merged with Baker International to form Baker Hughes (rank: 197) April 3, 1987.

[16] Acquired by Tonka October 16, 1987.

[17] Acquired by Hanson Industries N.A. (rank: 115) November 9, 1987.

[18] Figures no longer made public.

[19] Acquired by ConAgra (rank: [illegible]) May 13, 1987.

[20] Acquired by Dainippon Ink & Chemicals (1986 International 500 rank: 265) September 9, 1987.

[21] Acquired by Banner Industries April 30, 1987.

[22] Acquired by Knoll International Holdings (rank: 191) June 11, 1986.

[23] Acquired by Stone Container (rank: 133) April 16, 1987.

[24] Liquidated after filing Chapter 11 October 13, 1986.

THE MONEY LOSERS

	SALES RANK	LOSS
TEXACO	7	$4,407,000,000
ROBINS (A.H.)	351	1,632,435,000
MAXUS ENERGY	285	539,600,000*
ALLEGHENY INT'L	250	451,157,000*
KAISERTECH	176	362,000,000*
BAKER HUGHES	197	254,822,000*
TENNECO	21	218,000,000*
DATA GENERAL	271	127,078,000*
MATTEL	322	113,163,000*
CAMERON IRON WORKS	489	110,165,000
COLECO INDUSTRIES	476	105,351,000*
DEERE	108	99,019,000*
FOXBORO	477	96,934,000
GOULD	278	95,600,000*
GENERAL INSTRUMENT	340	80,377,000*
CINCINNATI MILACRON	357	79,973,000
WANG LABORATORIES	146	70,700,000
WHEELING-PITTS. STEEL	326	65,732,000*
ADVANCED MICRO DEVICES	328	48,068,000*
QUAKER STATE	353	48,057,000
XIDEX	440	44,540,000
MURPHY OIL	235	43,638,000*
WESTMORELAND COAL	417	43,059,000
FRUEHAUF	147	41,480,241
M/A-COM	459	35,360,000
HARTE-HANKS COMMUN.	452	32,512,000
AVERY	426	31,733,000
ALLIS-CHALMERS	394	29,300,000*
NAT'L SEMICONDUCTOR	204	24,600,000*
NATIONAL GYPSUM	251	22,800,000
NL INDUSTRIES	253	19,913,000*
AMSTED INDUSTRIES	359	19,300,000*
ZENITH ELECTRONICS	170	19,129,000*
SWIFT INDEPENDENT	117	18,437,000
PERKIN ELMER	259	18,178,000
NORTH AMERICAN PHILIPS	86	18,081,000
CYCLOPS INDUSTRIES	303	17,003,000
CLARK EQUIPMENT	315	16,624,000*
KNOLL INT'L HOLDINGS	191	15,682,000*
UNITED MERCHANTS	375	15,251,000*
FRUIT OF THE LOOM	325	13,400,000
WARNACO GROUP	420	10,803,000*
INSILCO	387	10,679,000
NORTEK	267	7,250,000
VISTA CHEMICAL	421	3,696,000
FIELDCREST CANNON	247	3,658,000
ALLIED PRODUCTS	482	2,514,000
MINSTAR	348	2,511,000

*Also lost money in 1986.

THE FORTUNE 500

RANKED WITHIN INDUSTRY BY 11 MEASURES

INDUSTRY TABLE NUMBER	COMPANY 500 RANK	SALES				PROFITS				PROFITS AS % OF						EARNINGS PER SHARE		TOTAL RETURN TO INVESTORS				EMPLOYEES		
		$ Mil.	Rank	% change from 1986	Rank	$ Mil.	Rank	% change from 1986	Rank	Sales %	Rank	Assets %	Rank	Equity %	Rank	1977-87 annual growth rate %	Rank	1977-87 annual average %	Rank	1987 %	Rank	Number	Rank	% change from 1986
1	**AEROSPACE** 18 COMPANIES																							
	UNITED TECHNOLOGIES 15	17,170	1	10	4	592	3	714	1	3	10	5	9	14	8	5	11	11	15	(24)	9	190,000	1	(2)
	BOEING 20	15,355	2	(6)	17	480	4	(28)	13	3	12	4	12	10	13	9	8	20	6	(25)	11	136,100	2	15
	MCDONNELL DOUGLAS 26	13,146	3	4	10	313	7	13	5	2	15	4	14	11	11	9	9	11	14	(14)	7	112,400	5	6
	ROCKWELL INTERNATIONAL 27	12,123	4	(1)	13	635	2	4	8	5	2	7	4	19	6	16	5	23	4	(14)	6	116,148	3	(4)
	ALLIED-SIGNAL 28	11,597	5	(2)	14	656	1	8	6	6	1	6	7	21	4	2	14	6	18	(26)	13	115,300	4	(16)
	LOCKHEED 30	11,370	6	11	3	421	6	3	9	4	9	7	5	20	5	18	4	22	5	(29)	16	99,300	7	2
	GENERAL DYNAMICS 39	9,344	7	1	12	437	5	—		5	3	9	1	27	2	18	3	20	7	(27)	15	105,300	6	(0)
	NORTHROP 69	6,053	8	8	8	94	10	129	2	2	16	3	15	10	12	2	13	17	10	(33)	17	48,200	10	3
	TEXTRON 72	5,661	9	8	7	256	8	7	7	5	6	5	11	11	10	5	10	11	13	(26)	12	61,000	9	(15)
	MARTIN MARIETTA 79	5,165	10	9	5	231	9	14	4	4	7	8	2	25	3	13	7	24	1	11	2	70,000	8	4
	GRUMMAN 127	3,325	11	(3)	15	36	13	(55)	15	1	17	2	17	5	16	(7)	17	13	12	(27)	14	33,700	11	1
	PARKER HANNIFIN 203	1,877	12	8	6	85	11	(3)	10	5	5	6	8	11	9	4	12	17	8	45	1	27,608	12	4
	COLT INDUSTRIES 218	1,642	13	2	11	75	12	(16)	11	5	4	7	3	—		21	2	24	2	(3)	3	16,600	13	(10)
	SUNDSTRAND 254	1,365	14	(5)	16	35	14	(24)	12	3	14	2	16	6	15	(2)	16	6	17	(18)	8	14,200	14	(11)
	SEQUA 257	1,350	15	37	1	—		—		—		—		—		—		16	11	(25)	10	—		—
	FAIRCHILD INDUSTRIES 346	897	16	(7)	18	23	17	—		3	13	5	10	49	1	0	15	6	16	(11)	5	4,877	17	(57)
	KAMAN 393	707	17	20	2	24	16	19	3	3	11	6	6	15	7	13	6	23	3	(6)	4	6,473	16	2
	ROHR INDUSTRIES 404	663	18	6	9	27	15	(43)	14	4	8	4	13	8	14	31	1	17	9	(44)	18	10,300	15	23
	TOTAL	118,811				4,420																1,167,506		
	MEDIAN	5,413		5		231		4		4		5		13		9		17		(24)		61,000		1
2	**APPAREL** 10 COMPANIES																							
	INTERCO 155	2,614	1	4	3	99	3	7	6	4	6	6	7	9	7	1	6	9	6	(9)	3	47,000	2	2
	VF 159	2,574	2	67	1	180	1	39	2	7	2	9	2	18	2	22	2	33	1	(19)	5	49,097	1	43
	HARTMARX 307	1,080	3	2	6	41	4	67	1	4	5	6	6	12	6	10	4	27	2	35	1	22,000	3	—
	CLAIBORNE (LIZ) 312	1,053	4	29	2	114	2	33	3	11	1	24	1	32	1	—		—		(22)	6	3,800	10	27
	FRUIT OF THE LOOM 325	1,013	5	(19)	10	(13)		—		—		—		—		—		—		—		19,600	4	17
	WARNACO GROUP 420	609	6	3	5	(11)		—		—		—		—		—		—		—		11,700	7	9
	LESLIE FAY 436	582	7	2	7	20	7	6	7	3	7	6	5	18	3	68	1	—		(53)	8	5,000	9	22
	KELLWOOD 441	572	8	(0)	8	25	5	32	4	4	3	8	4	16	4	6	5	15	5	(9)	2	14,000	5	(7)
	OXFORD INDUSTRIES 455	553	9	4	4	11	8	3	8	2	8	5	8	8	8	(1)	7	20	4	(19)	4	12,101	6	1
	PHILLIPS-VAN HEUSEN 473	514	10	(7)	9	20	6	26	5	4	4	8	3	12	5	15	3	22	3	(38)	7	8,000	8	10
	TOTAL	11,165				486																192,298		
	MEDIAN	811		2		33		29		4		7		14		10		21		(19)		13,051		10
3	**BEVERAGES** 8 COMPANIES																							
	PEPSICO 29	11,500	1	24	2	595	3	30	3	5	6	7	4	24	2	12	4	18	4	31	1	225,000	1	5
	ANHEUSER-BUSCH 47	8,258	2	8	5	615	2	19	4	7	4	9	2	21	3	20	1	30	1	30	2	41,541	2	(1)
	COCA-COLA 54	7,658	3	(12)	8	916	1	(2)	6	12	2	11	1	28	1	11	5	18	5	4	3	17,000	4	(39)
	COCA-COLA ENTERPRISES 126	3,329	4	71	1	88	6	218	1	3	8	2	8	6	7	—		—		0	4	21,500	3	7
	SEAGRAM (JOSEPH E.) & SONS 192	2,029	5	12	3	338	4	37	2	17	1	5	5	9	6	—		—		—		10,600	6	10
	COORS (ADOLPH) 256	1,351	6	3	7	48	8	(19)	7	4	7	3	7	5	8	(4)	6	5	6	(28)	7	9,900	7	1
	BROWN-FORMAN 302	1,098	7	10	4	90	5	4	5	8	3	8	3	15	4	16	2	21	2	(11)	5	6,600	8	(3)
	GENERAL CINEMA 313	1,053	8	4	6	69	7	(45)	8	7	5	4	6	13	5	15	3	20	3	(11)	6	14,900	5	19
	TOTAL	36,277				2,759																347,041		
	MEDIAN	2,679		9		214		11		7		6		14		14		19		0		15,950		3
4	**BUILDING MATERIALS** 16 COMPANIES																							
	PPG INDUSTRIES 78	5,183	1	11	6	377	1	19	6	7	5	8	7	18	4	16	3	23	3	(7)	10	36,800	1	1
	OWENS-ILLINOIS 116	3,715	2	2	11	—		—		—		—		—		—		—		—		—		—
	USG 142	3,046	3	6	8	204	3	(9)	10	7	8	10	4	33	1	17	2	25	2	(20)	13	22,200	3	2
	OWENS-CORNING FIBERGLAS 144	2,891	4	(21)	16	200	4	1,179	1	7	7	13	1	—		3	8	17	7	19	9	18,800	4	(32)
	WALTER (JIM) 168	2,386	5	3	10	166	5	20	5	7	6	6	11	13	8	6	6	19	5	62	2	16,750	6	1
	CORNING GLASS WORKS 186	2,084	6	12	5	208	2	17	7	10	3	8	5	14	7	6	7	9	9	(13)	11	25,500	2	2
	MANVILLE 190	2,063	7	7	7	73	8	(11)	12	4	13	3	13	7	13	(8)	12	(20)	12	20	8	18,600	5	(2)
	NATIONAL GYPSUM 251	1,380	8	(19)	15	(23)		—		—		—		—		—		—		—		9,335	10	(2)
	NORTON 272	1,261	9	14	4	67	9	—		5	11	6	10	13	10	2	9	14	8	31	6	15,500	7	2
	LAFARGE 283	1,221	10	27	2	75	7	189	2	6	9	7	9	13	9	—		—		30	7	6,305	12	9

BY INDUSTRY

RANKED WITHIN INDUSTRY BY 11 MEASURES

INDUSTRY TABLE NUMBER · COMPANY 500 RANK	SALES				PROFITS				PROFITS AS % OF						EARNINGS PER SHARE		TOTAL RETURN TO INVESTORS				EMPLOYEES		
	$ Mil.	Rank	% change from 1986	Rank	$ Mil.	Rank	% change from 1986	Rank	Sales %	Rank	Assets %	Rank	Equity %	Rank	1977-87 annual growth rate %	Rank	1977-87 annual average %	Rank	1987 %	Rank	Number	Rank	% change from 1986
CERTAINTEED 294	1,158	11	4	9	61	10	7	9	5	10	7	8	11	11	(1)	11	4	11	(18)	12	7,398	11	5
BROCKWAY 306	1,082	12	2	12	41	13	35	4	4	12	8	6	15	6	6	5	21	4	112	1	12,000	8	—
ANCHOR GLASS CONTAINER 374	766	13	30	1	20	14	(10)	11	3	14	3	14	23	3	—		—		50	3	9,938	9	84
LONE STAR INDUSTRIES 376	761	14	(14)	14	57	12	(51)	13	8	4	4	12	9	12	1	10	8	10	(30)	14	5,066	13	(30)
CALMAT 424	602	15	(1)	13	78	6	77	3	13	1	12	2	18	5	15	4	17	6	32	5	3,220	15	2
AFG INDUSTRIES 488	488	16	20	3	58	11	9	8	12	2	11	3	26	2	82	1	46	1	41	4	4,481	14	24
TOTAL	30,089				1,662																211,893		
MEDIAN	1,320		5		74		17		7		7		14		6		17		25		12,000		2
5 CHEMICALS 48 COMPANIES																							
DU PONT (E.I.) DE NEMOURS 9	30,468	1	12	22	1,786	1	16	26	6	22	6	23	13	25	7	13	14	20	7	23	140,145	1	(1)
DOW CHEMICAL 24	13,377	2	20	11	1,240	2	69	11	9	11	9	15	21	6	8	10	19	12	58	5	53,100	3	4
MONSANTO 55	7,639	3	11	23	436	4	1	33	6	24	5	29	11	30	4	16	17	14	12	15	49,734	4	(4)
UNION CARBIDE 59	6,914	4	(12)	45	232	8	(53)	36	3	35	3	38	19	11	(1)	24	16	17	3	28	43,119	6	(14)
GRACE (W.R.) 81	5,046	5	(26)	48	173	14	—		3	34	4	35	12	28	1	19	12	24	3	26	39,393	7	(5)
HOECHST CELANESE 91	4,596	6	179	3	169	15	347	2	4	32	3	37	5	38	—		—		—		24,300	10	175
BASF 99	4,334	7	19	16	131	19	25	23	3	36	5	30	14	21	—		—		—		20,834	13	4
BAYER USA 103	4,199	8	23	7	123	20	31	17	3	37	4	34	12	29	—		—		—		24,105	11	27
AMERICAN CYANAMID 106	4,166	9	9	26	276	5	36	15	7	19	7	22	15	18	8	12	17	16	8	20	34,267	8	(1)
HANSON IND. N.A. 115	3,769	10	0	39	229	9	122	8	6	21	8	19	31	4	—		—		—		43,125	5	2
BORG-WARNER 119	3,554	11	(2)	41	—		—		—		—		—		—		—		—		72,800	2	(12)
FMC 137	3,139	12	5	35	181	13	18	25	6	23	7	21	—		2	18	28	2	31	10	24,797	9	(1)
HERCULES 150	2,693	13	3	37	821	3	262	3	30	1	24	2	37	3	27	1	17	13	(4)	31	23,152	12	(8)
QUANTUM CHEMICAL 154	2,642	14	26	6	252	6	233	4	10	10	10	11	24	5	9	8	22	8	75	4	10,906	21	(20)
ENGELHARD 163	2,479	15	8	29	70	28	31	18	3	38	6	26	10	35	—		—		9	19	6,700	31	(3)
ROHM & HAAS 177	2,203	16	7	33	196	11	42	13	9	12	10	7	19	12	17	2	24	7	(7)	33	12,021	19	(0)
GOODRICH (B.F.) 180	2,168	17	(15)	46	105	21	221	5	5	26	5	28	10	33	0	21	13	23	(2)	30	11,972	20	0
AIR PRODUCTS & CHEMICALS 183	2,140	18	8	31	156	16	3,186	1	7	17	6	25	14	23	9	9	15	19	18	14	12,100	18	(27)
SHERWIN-WILLIAMS 185	2,095	19	(7)	44	97	22	(9)	35	5	27	8	16	18	15	—		24	6	(10)	34	15,901	15	16
MORTON THIOKOL 194	1,987	20	2	38	138	17	4	30	7	18	8	17	15	19	13	6	20	10	9	18	19,663	14	10
OLIN 196	1,930	21	13	20	78	27	4	31	4	31	5	33	11	31	0	20	15	18	6	24	14,100	16	7
ETHYL 212	1,720	22	9	27	193	12	9	27	11	5	10	10	20	8	11	7	27	4	0	29	10,000	22	(5)
INT'L MINERALS & CHEMICAL 219	1,638	23	(4)	43	21	39	—		1	40	1	41	2	41	(23)	28	12	25	84	3	12,200	17	(12)
CABOT 241	1,424	24	9	28	29	37	(60)	37	2	39	2	40	5	39	(2)	25	20	11	12	16	5,100	33	(23)
NL INDUSTRIES 253	1,371	25	7	32	(20)		—		—		—		—		—		4	32	11	17	7,985	25	59
DOW CORNING 266	1,303	26	20	13	135	18	22	24	10	7	10	8	19	10	—		—		—		7,000	29	9
NAT'L STARCH & CHEM. 287	1,208	27	14	19	92	23	28	20	8	15	10	9	19	13	—		—		—		6,759	30	5
PENNWALT 289	1,197	28	8	30	52	31	1	32	4	28	5	31	11	32	(1)	22	8	30	(6)	32	9,000	23	(6)
HIMONT 292	1,165	29	20	14	227	10	133	7	19	3	15	4	21	7	—		—		5	25	2,800	40	(1)
TYLER 300	1,100	30	14	18	12	41	1	34	1	41	2	39	7	37	(3)	26	8	29	(12)	35	7,500	27	(0)
LUBRIZOL 324	1,013	31	4	36	81	25	4	29	8	13	9	14	13	24	3	17	11	27	8	21	4,817	35	0
ARISTECH CHEMICAL 344	919	32	22	8	70	29	46	12	8	16	13	5	19	9	—		—		52	7	1,685	44	(1)
FERRO 349	871	33	20	12	32	36	32	16	4	33	6	24	12	27	5	14	14	22	19	13	7,920	26	1
NALCO CHEMICAL 354	842	34	14	17	80	26	26	22	10	9	11	6	18	14	5	15	14	21	25	11	5,085	34	4
GAF 356	837	35	11	24	238	7	194	6	28	2	18	3	47	2	—		27	3	23	12	4,635	36	10
CF INDUSTRIES 363	810	36	6	34	—		—		—		—		—		—		—		—		1,424	46	5
DEXTER 370	783	37	20	10	43	33	27	21	5	25	7	20	15	20	8	11	17	15	8	22	5,300	32	(4)
INSILCO 387	718	38	(4)	42	(11)		—		—		—		—		—		12	26	(18)	37	7,446	28	3
GEORGIA GULF 392	707	39	21	9	82	24	109	9	12	4	27	1	57	1	—		—		183	1	993	48	(2)
VISTA CHEMICAL 421	609	40	11	25	(4)		—		—		—		—		—		—		143	2	1,612	45	5
AVERY 426	600	41	5,706	1	(32)		—		—		—		—		—		—		—		2,660	41	—
FULLER (H.B.) 431	597	42	13	21	26	38	36	14	4	29	8	18	16	16	15	5	26	5	46	8	4,600	37	2
LIQUID AIR 444	566	43	(1)	40	37	34	6	28	6	20	5	32	12	26	(1)	23	6	31	(17)	36	4,011	38	(9)
BIG THREE INDUSTRIES 470	518	44	(20)	47	51	32	—		10	8	6	27	10	34	—		—		—		2,298	43	(7)
GROW GROUP 480	502	45	37	5	1	42	(83)	38	0	42	0	42	2	40	(23)	29	10	28	(40)	38	3,500	39	(4)
GREAT LAKES CHEMICAL 481	501	46	67	4	56	30	107	10	11	6	10	12	14	22	15	4	22	9	52	6	2,560	42	16
SCHULMAN (A.) 498	464	47	20	15	20	40	30	19	4	30	9	13	16	17	17	3	37	1	36	9	1,111	47	3
HANNA (M.A.) 500	459	48	252	2	36	35	—		8	14	4	36	9	36	(7)	27	(3)	33	3	27	8,643	24	137
TOTAL	135,981				8,433																834,878		
MEDIAN	1,398		11		101		29		6		7		14		5		16		9		8,314		(0)

THE FORTUNE 500

INDUSTRY TABLE NUMBER	COMPANY 500 RANK	RANKED WITHIN INDUSTRY BY 11 MEASURES																						
		SALES				PROFITS				PROFITS AS % OF						EARNINGS PER SHARE		TOTAL RETURN TO INVESTORS				EMPLOYEES		
										Sales		Assets		Equity		1977-87 annual growth rate		1977-87 annual average		1987				
		$ Mil.	Rank	% change from 1986	Rank	$ Mil.	Rank	% change from 1986	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	Number	Rank	% change from 1986
6	**COMPUTERS (INCLUDES OFFICE EQUIPMENT)** 25 COMPANIES																							
	IBM 4	54,217	1	6	22	5,258	1	10	16	10	8	8	11	14	12	7	11	10	13	(1)	16	389,348	1	(4)
	UNISYS 36	9,713	2	31	9	578	4	—		6	16	6	15	13	15	6	12	8	14	29	10	92,500	3	(6)
	DIGITAL EQUIPMENT 38	9,389	3	24	10	1,137	2	84	5	12	2	14	4	18	9	20	6	19	11	29	11	110,500	2	17
	HEWLETT-PACKARD 49	8,090	4	14	16	644	3	25	10	8	12	8	13	13	14	17	7	21	9	40	8	82,000	4	—
	NCR 74	5,641	5	16	13	419	5	25	11	7	13	10	8	19	6	13	10	23	7	46	6	62,000	5	—
	CONTROL DATA 125	3,367	6	1	23	19	20	—		1	21	1	21	2	21	(13)	14	5	15	(18)	20	34,500	6	0
	WANG LABORATORIES 146	2,837	7	7	20	(71)		—		—		—		—		—		21	10	0	15	30,306	7	(4)
	APPLE COMPUTER 152	2,661	8	40	6	217	6	41	7	8	11	15	3	26	3	—		—		108	2	7,228	15	29
	PITNEY BOWES 175	2,251	9	13	17	199	7	19	12	9	10	8	12	19	7	14	9	27	4	6	13	29,460	8	1
	AMDAHL 231	1,505	10	56	4	146	9	249	1	10	7	10	10	19	8	2	13	11	12	52	4	7,500	14	6
	DATA GENERAL 271	1,274	11	1	24	(127)		—		—		—		—		—		(1)	16	(20)	21	15,685	9	1
	GOULD 278	1,233	12	(14)	25	(96)		—		—		—		—		—		(4)	17	(26)	23	10,126	10	(5)
	COMPAQ COMPUTER 282	1,224	13	96	2	136	10	218	2	11	4	15	2	34	2	—		—		188	1	4,000	23	81
	TANDEM COMPUTERS 318	1,035	14	35	7	106	11	66	6	10	6	11	7	15	11	60	1	36	2	61	3	7,007	17	23
	PRIME COMPUTER 334	961	15	12	18	65	14	38	8	7	15	5	17	13	13	28	3	24	6	(5)	17	8,818	12	2
	TELEX 360	822	16	18	11	77	12	14	15	9	9	12	5	22	5	25	5	34	3	(15)	19	8,000	13	8
	STORAGE TECHNOLOGY 379	750	17	8	19	26	17	(28)	18	3	18	3	20	11	18	(16)	15	(10)	18	(46)	24	8,865	11	3
	CRAY RESEARCH 397	687	18	15	14	147	8	18	13	21	1	16	1	24	4	48	2	43	1	(13)	18	4,308	21	8
	INTERGRAPH 409	641	19	6	21	70	13	(1)	17	11	5	10	9	12	16	—		—		46	5	6,300	19	11
	XIDEX 440	573	20	33	8	(45)		—		—		—		—		—		—		(47)	25	7,066	16	10
	COMPUTERVISION 446	564	21	14	15	19	19	—		3	19	4	18	10	19	17	8	26	5	4	14	4,575	20	(4)
	APOLLO COMPUTER 454	554	22	41	5	22	18	132	4	4	17	5	16	10	20	—		—		(22)	22	3,992	24	12
	SCI SYSTEMS 456	553	23	18	12	16	21	16	14	3	20	4	19	12	17	27	4	23	8	13	12	6,660	18	28
	SUN MICROSYSTEMS 463	538	24	156	1	36	16	204	3	7	14	7	14	15	10	—		—		40	9	4,200	22	107
	ATARI 484	493	25	91	3	57	15	29	9	12	3	11	6	34	1	—		—		45	7	3,950	25	172
	TOTAL	111,573				9,059																948,894		
	MEDIAN	1,224		16		106		27		8		8		15		17		21		6		8,000		8
7	**ELECTRONICS** 46 COMPANIES																							
	GENERAL ELECTRIC 6	39,315	1	12	17	2,915	1	17	19	7	12	7	17	18	11	10	14	18	13	5	19	302,000	2	(16)
	AMERICAN TEL. & TEL. 8	33,598	2	(1)	40	2,044	2	1,371	1	6	15	5	25	14	19	(12)	32	5	36	13	14	303,000	1	(4)
	WESTINGHOUSE ELECTRIC 33	10,679	3	(0)	38	739	4	10	27	7	14	7	18	21	6	14	8	24	4	(8)	29	112,478	4	(4)
	ITT 45	8,551	4	8	19	1,018	3	106	6	12	3	8	16	13	24	5	23	16	21	41	6	120,000	3	(2)
	RAYTHEON 53	7,659	5	5	29	445	6	13	22	6	16	11	7	24	4	13	10	18	14	1	22	76,500	9	2
	TRW 61	6,821	6	6	27	243	13	12	23	4	29	6	24	17	14	5	21	16	20	16	12	77,900	8	(1)
	MOTOROLA 62	6,707	7	14	13	308	9	59	8	5	25	6	22	10	31	7	18	17	16	41	5	97,700	5	3
	HONEYWELL 63	6,679	8	(6)	42	254	10	—		4	28	5	27	11	28	5	22	13	27	(6)	27	78,881	6	1
	EMERSON ELECTRIC 67	6,170	9	25	10	467	5	14	21	8	11	10	9	17	13	9	15	16	19	28	9	68,700	10	13
	TEXAS INSTRUMENTS 75	5,595	10	12	16	309	8	960	2	6	18	7	19	14	21	8	17	11	31	43	4	77,984	7	1
	NORTH AMERICAN PHILIPS 86	4,847	11	7	23	(18)		—		—		—		—		—		—		—		50,489	12	0
	LITTON INDUSTRIES 96	4,420	12	(2)	41	138	19	94	7	3	31	3	32	13	23	16	4	21	9	(3)	26	54,200	11	(2)
	WHIRLPOOL 105	4,179	13	4	32	192	15	(4)	31	5	24	8	15	15	18	6	19	14	22	(26)	39	30,412	17	(2)
	EATON 110	4,054	14	6	24	201	14	46	12	5	20	7	20	19	9	6	20	17	17	10	15	35,914	15	(17)
	COOPER INDUSTRIES 118	3,586	15	4	31	174	16	18	17	5	23	5	29	11	29	4	26	13	23	38	7	43,200	14	7
	COMBUSTION ENGINEERING 128	3,301	16	29	7	57	28	11	24	2	35	2	35	7	35	(3)	30	10	33	(0)	23	27,581	20	14
	TELEDYNE 134	3,217	17	(1)	39	377	7	58	9	12	4	12	5	19	7	16	2	28	1	2	20	44,400	13	(1)
	JOHNSON CONTROLS 151	2,677	18	1	37	90	21	(7)	32	3	30	5	26	12	27	5	24	10	34	(8)	28	26,900	21	—
	ZENITH ELECTRONICS 170	2,363	19	25	9	(19)		—		—		—		—		—		3	38	(33)	41	35,000	16	(5)
	AMP 171	2,318	20	20	11	250	11	52	10	11	5	12	6	19	10	13	9	20	10	32	8	22,000	24	1
	HARRIS 187	2,079	21	(6)	43	85	22	42	13	4	27	5	28	9	33	2	27	4	37	(10)	32	24,300	22	(9)
	MAYTAG 199	1,909	22	4	35	153	17	37	14	8	9	18	1	37	3	11	13	20	11	(2)	24	13,072	33	7
	INTEL 200	1,907	23	51	5	248	12	—		13	2	10	10	19	8	18	1	21	8	89	1	19,200	27	3
	SINGER 202	1,903	24	(9)	44	26	33	(68)	34	1	36	2	36	4	38	(15)	33	10	32	27	10	28,000	19	—
	NATIONAL SEMICONDUCTOR 204	1,868	25	26	8	(25)		—		—		—		—		—		11	30	13	13	29,241	18	(5)
	SQUARE D 234	1,484	26	6	26	110	20	11	25	7	13	9	11	16	15	4	25	13	24	17	11	19,800	25	(4)
	CHICAGO PACIFIC 244	1,412	27	48	6	35	30	21	16	2	32	2	34	8	34	—		—		(10)	30	22,101	23	12
	RELIANCE ELECTRIC 245	1,408	28	6	25	4	38	(87)	35	0	39	0	39	10	32	—		—		—		16,878	29	—
	ALLEGHENY INTERNATIONAL 250	1,390	29	(28)	45	(451)		—		—		—		—		—		(14)	39	(78)	42	12,800	34	(29)
	NAT'L SERVICE IND. 261	1,327	30	3	36	76	23	6	29	6	17	10	8	15	17	12	11	25	3	(2)	25	19,400	26	1

RANKED WITHIN INDUSTRY BY 11 MEASURES

INDUSTRY TABLE NUMBER	COMPANY 500 RANK	SALES				PROFITS				PROFITS AS % OF						EARNINGS PER SHARE		TOTAL RETURN TO INVESTORS				EMPLOYEES		
										Sales		Assets		Equity		1977-87 annual growth rate		1977-87 annual average		1987				
		$ Mil.	Rank	% change from 1986	Rank	$ Mil.	Rank	% change from 1986	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	Number	Rank	% change from 1986
	E-SYSTEMS 281	**1,227**	31	**8**	20	**60**	26	**(2)**	30	**5**	21	**9**	12	**14**	20	**8**	16	**21**	7	**(10)**	31	**15,506**	31	**4**
	ADVANCED MICRO DEVICES 328	**997**	32	**73**	3	**(48)**		—		—		—		—		—		**20**	12	**(28)**	40	**18,000**	28	**31**
	CHAMPION SPARK PLUG 329	**996**	33	**13**	14	**19**	36	**11**	26	**2**	34	**3**	31	**5**	36	**(9)**	31	**6**	35	**6**	18	**9,200**	38	**(26)**
	VARIAN ASSOCIATES 332	**983**	34	**8**	21	**21**	35	—		**2**	33	**3**	33	**5**	37	**2**	28	**11**	29	**7**	17	**11,900**	36	**3**
	SEAGATE TECHNOLOGY 335	**958**	35	**108**	2	**140**	18	**305**	3	**15**	1	**17**	2	**39**	2	—		—		**(22)**	37	**14,932**	32	**85**
	GENERAL INSTRUMENT 340	**947**	36	**13**	15	**(80)**		—		—		—		—		—		**17**	18	**65**	2	**16,300**	30	**(20)**
	RAYCHEM 341	**944**	37	**18**	12	**74**	24	**51**	11	**8**	10	**8**	14	**13**	25	**16**	3	**18**	15	**51**	3	**9,899**	37	**(0)**
	LORAL 396	**690**	38	**4**	34	**57**	27	**8**	28	**8**	8	**4**	30	**16**	16	**15**	5	**22**	6	**(17)**	35	**7,400**	41	**(9)**
	PITTWAY 407	**649**	39	**11**	18	**32**	31	**17**	18	**5**	19	**6**	23	**10**	30	**1**	29	**13**	25	**(22)**	36	**8,000**	40	**11**
	BAIRNCO 412	**630**	40	**8**	22	**28**	32	**25**	15	**4**	26	**6**	21	**13**	22	**15**	6	**26**	2	**(12)**	34	**5,341**	43	**(0)**
	MAGNETEK 419	**609**	41	**123**	1	**5**	37	**(8)**	33	**1**	37	**1**	37	**49**	1	—		—		—		**12,500**	35	**108**
	HUBBELL 437	**581**	42	**4**	33	**63**	25	**15**	20	**11**	6	**13**	4	**18**	12	**12**	12	**22**	5	**9**	16	**5,211**	44	**(7)**
	M/A-COM 459	**543**	43	**(39)**	46	**(35)**		—		—		—		—		—		**13**	26	**(24)**	38	**6,756**	42	**(25)**
	SCIENTIFIC-ATLANTA 483	**495**	44	**6**	28	**24**	34	—		**5**	22	**8**	13	**12**	26	**15**	7	**12**	28	**2**	21	**3,350**	45	**(18)**
	SPRAGUE TECHNOLOGIES 495	**470**	45	**5**	30	**4**	39	—		**1**	38	**1**	38	**1**	39	—		—		—		**8,353**	39	—
	WESTERN DIGITAL 499	**462**	46	**54**	4	**48**	29	**108**	5	**10**	7	**16**	3	**24**	5	—		—		**(12)**	33	**3,338**	46	**35**
	TOTAL	**195,603**				**10,855**																**2,046,017**		
	MEDIAN	**1,905**		**7**		**110**		**17**		**5**		**7**		**14**		**8**		**16**		**2**		**22,051**		**(0)**
8	**FOOD** 47 COMPANIES																							
	OCCIDENTAL PETROLEUM 16	**17,096**	1	**11**	23	**240**	12	**33**	12	**1**	34	**1**	37	**5**	37	**(10)**	32	**9**	31	**(5)**	22	**50,350**	6	**(2)**
	KRAFT 31	**11,011**	2	**26**	6	**489**	2	**18**	20	**4**	14	**9**	12	**26**	6	**7**	25	**21**	16	**3**	18	**46,500**	9	**(9)**
	SARA LEE 40	**9,155**	3	**15**	14	**267**	6	**20**	18	**3**	23	**6**	21	**19**	15	**12**	12	**25**	11	**7**	13	**92,400**	2	**6**
	CONAGRA 41	**9,002**	4	**52**	1	**149**	15	**41**	7	**2**	32	**6**	23	**21**	12	**17**	5	**33**	2	**(9)**	26	**42,176**	10	**25**
	BEATRICE 42	**8,926**	5	**6**	32	—		—		—		—		—		—		—		—		**62,000**	4	—
	BORDEN 64	**6,514**	6	**30**	5	**267**	7	**20**	17	**4**	17	**6**	20	**16**	19	**10**	17	**23**	13	**8**	12	**39,400**	12	**17**
	PILLSBURY 68	**6,128**	7	**5**	38	**182**	14	**(13)**	32	**3**	22	**5**	29	**13**	27	**9**	19	**18**	21	**6**	14	**104,900**	1	**(3)**
	RALSTON PURINA 70	**5,868**	8	**6**	31	**523**	1	**35**	11	**9**	3	**14**	3	**54**	1	**18**	4	**21**	17	**(8)**	25	**58,298**	5	**(7)**
	ARCHER DANIELS MIDLAND 71	**5,775**	9	**8**	26	**265**	8	**15**	22	**5**	13	**7**	18	**11**	31	**11**	14	**17**	23	**22**	7	**10,573**	22	**2**
	GENERAL MILLS 77	**5,208**	10	**14**	16	**222**	13	**21**	16	**4**	15	**10**	9	**30**	5	**8**	22	**19**	20	**18**	9	**65,619**	3	**6**
	CPC INTERNATIONAL 84	**4,903**	11	**8**	29	**355**	4	**62**	4	**7**	6	**11**	6	**33**	4	**12**	13	**19**	19	**5**	16	**31,400**	14	**(19)**
	HEINZ (H.J.) 88	**4,639**	12	**6**	33	**339**	5	**12**	23	**7**	5	**10**	8	**24**	8	**15**	7	**26**	9	**2**	19	**49,000**	8	**4**
	IC INDUSTRIES 92	**4,581**	13	**3**	40	**252**	9	—		**5**	9	**5**	27	**16**	20	**7**	24	**25**	12	**47**	2	**33,468**	13	**(12)**
	QUAKER OATS 93	**4,539**	14	**24**	7	**244**	11	**36**	8	**5**	10	**8**	16	**22**	10	**15**	8	**27**	8	**6**	15	**30,800**	15	**4**
	CAMPBELL SOUP 94	**4,490**	15	**3**	41	**247**	10	**11**	25	**6**	8	**8**	14	**14**	23	**9**	20	**18**	22	**0**	21	**49,226**	7	**5**
	KELLOGG 114	**3,793**	16	**14**	17	**396**	3	**24**	15	**10**	1	**15**	2	**33**	3	**13**	9	**22**	14	**3**	17	**17,762**	17	**2**
	SWIFT INDEPENDENT 117	**3,692**	17	**34**	4	**(18)**		—		—		—		—		—		—		—		**6,850**	30	**(1)**
	UNITED BRANDS 131	**3,268**	18	**(1)**	43	**59**	21	**10**	26	**2**	30	**5**	26	**14**	24	**23**	2	**22**	15	**39**	3	**40,000**	11	**3**
	HERSHEY FOODS 165	**2,434**	19	**12**	20	**148**	16	**12**	24	**6**	7	**9**	11	**18**	17	**13**	11	**27**	7	**2**	20	**16,200**	18	**1**
	HORMEL (GEO. A.) 172	**2,314**	20	**18**	10	**46**	23	**18**	21	**2**	28	**7**	19	**12**	29	**8**	23	**26**	10	**27**	5	**8,900**	25	**49**
	LAND O'LAKES 179	**2,189**	21	**(1)**	44	—		—		—		—		—		—		—		—		**7,087**	28	**7**
	TYSON FOODS 207	**1,786**	22	**19**	9	**68**	20	**35**	10	**4**	18	**8**	13	**25**	7	**39**	1	**46**	1	**(29)**	31	**25,200**	16	**1**
	INT'L MULTIFOODS 228	**1,533**	23	**13**	18	**52**	22	**107**	2	**3**	21	**8**	15	**16**	21	**8**	21	**12**	28	**15**	10	**8,602**	26	**(8)**
	CENTRAL SOYA 229	**1,523**	24	**3**	39	**9**	35	**382**	1	**1**	36	**2**	36	**12**	28	—		—		—		**3,200**	39	**(9)**
	GOLD KIST 232	**1,500**	25	**8**	30	—		—		—		—		—		—		—		—		**9,500**	23	**1**
	MID-AMERICA DAIRYMEN 233	**1,500**	26	**6**	36	—		—		—		—		—		—		—		—		**3,800**	37	**27**
	DEAN FOODS 238	**1,435**	27	**13**	19	**41**	24	**1**	29	**3**	24	**9**	10	**17**	18	**15**	6	**30**	4	**(10)**	27	**6,900**	29	**16**
	LIPTON (THOMAS J.) 243	**1,413**	28	**8**	25	**109**	17	**19**	19	**8**	4	**13**	4	**20**	13	—		—		—		**5,242**	33	**0**
	HOLLY FARMS 246	**1,407**	29	**16**	13	**72**	18	**96**	3	**5**	11	**10**	7	**21**	11	**19**	3	**20**	18	**(31)**	32	**14,500**	20	**32**
	AMSTAR 248	**1,400**	30	**6**	34	**24**	30	**(32)**	33	**2**	31	**3**	34	**34**	2	—		—		—		**5,275**	32	**(31)**
	WILSON FOODS 258	**1,348**	31	**(7)**	47	**6**	37	—		**0**	37	**3**	35	**8**	36	—		—		**(15)**	29	**4,900**	34	**4**
	MCCORMICK 308	**1,078**	32	**11**	24	**31**	25	**3**	28	**3**	25	**4**	30	**11**	32	**7**	27	**12**	27	**(5)**	23	**7,501**	27	**2**
	SMITHFIELD FOODS 316	**1,047**	33	**21**	8	**7**	36	**42**	6	**1**	35	**5**	28	**19**	14	**13**	10	**33**	3	**31**	4	**4,700**	35	**(2)**
	GERBER PRODUCTS 317	**1,046**	34	**8**	28	**28**	26	**(37)**	34	**3**	26	**4**	31	**9**	34	**2**	30	**16**	25	**(14)**	28	**15,872**	19	**4**
	SAVANNAH FOODS & IND. 347	**879**	35	**38**	3	**14**	32	**35**	9	**2**	33	**4**	32	**12**	30	**10**	18	**29**	6	**22**	8	**1,873**	43	**37**
	FLOWERS INDUSTRIES 366	**797**	36	**14**	15	**28**	27	**(6)**	30	**3**	20	**7**	17	**16**	22	**10**	16	**30**	5	**24**	6	**9,370**	24	**(6)**
	WRIGLEY (WM. JR.) 371	**781**	37	**12**	21	**70**	19	**30**	13	**9**	2	**17**	1	**24**	9	**10**	15	**17**	24	**56**	1	**5,500**	31	—
	INTERSTATE BAKERIES 380	**749**	38	**6**	35	**14**	33	**(9)**	31	**2**	29	**6**	25	**14**	25	**7**	26	**12**	29	**(27)**	30	**11,300**	21	**3**
	OCEAN SPRAY CRANBERRIES 385	**723**	39	**16**	12	—		—		—		—		—		—		—		—		**1,890**	42	**2**
	UNIVERSAL FOODS 390	**710**	40	**18**	11	**25**	29	**61**	5	**3**	19	**6**	22	**14**	26	**5**	28	**14**	26	**14**	11	**3,869**	36	**(18)**
	AG PROCESSING 400	**676**	41	**8**	27	—		—		—		—		—		—		—		—		**588**	46	**(7)**

THE FORTUNE 500

RANKED WITHIN INDUSTRY BY 11 MEASURES

INDUSTRY TABLE NUMBER	COMPANY 500 RANK	SALES				PROFITS				PROFITS AS % OF						EARNINGS PER SHARE		TOTAL RETURN TO INVESTORS				EMPLOYEES		
		$ Mil.	Rank	% change from 1986	Rank	$ Mil.	Rank	% change from 1986	Rank	Sales %	Rank	Assets %	Rank	Equity %	Rank	1977-87 annual growth rate %	Rank	1977-87 annual average %	Rank	1987 %	Rank	Number	Rank	% change from 1986
	THORN APPLE VALLEY 425	602	42	(1)	46	1	38	—		0	38	1	38	4	38	(10)	33	4	33	—		2,440	41	(1)
	CALIF. & HAWAIIAN SUGAR 435	588	43	12	22	—		—		—		—		—		—		—		—		1,186	45	(10)
	SHAKLEE 442	572	44	44	2	23	31	(60)	35	4	16	6	24	9	33	(3)	31	5	32	(7)	24	4,700	35	370
	RICELAND FOODS 466	525	45	(1)	45	26	28	8	27	5	12	12	5	19	16	—		—		—		1,797	44	(8)
	SUN-DIAMOND GROWERS 468	523	46	5	37	—		—		—		—		—		—		—		—		2,452	40	(2)
	AMERICAN MAIZE-PRODUCTS 475	507	47	(1)	42	13	34	30	14	2	27	3	33	8	35	4	29	10	30	(33)	33	3,352	38	4
	TOTAL	152,170				5,329																1,028,418		
	MEDIAN	1,523		11		69		20		3		7		16		10		21		3		9,435		1
9	**FOREST PRODUCTS** 32 COMPANIES																							
	GEORGIA-PACIFIC 44	8,603	1	19	16	458	1	55	17	5	20	8	9	17	9	5	19	6	27	(4)	27	42,000	2	8
	INTERNATIONAL PAPER 52	7,763	2	41	3	407	3	33	19	5	21	5	29	10	29	4	22	12	23	15	10	45,500	1	3
	WEYERHAEUSER 58	6,990	3	24	12	447	2	61	15	6	18	6	20	12	25	3	26	8	26	6	19	39,835	3	6
	KIMBERLY-CLARK 85	4,885	4	14	19	325	5	21	24	7	14	8	7	21	5	10	7	23	8	29	6	37,357	4	2
	CHAMPION INTERNATIONAL 90	4,615	5	5	27	382	4	90	9	8	11	6	19	13	20	4	23	10	25	14	12	30,700	6	(5)
	JAMES RIVER CORP. OF VA. 95	4,479	6	72	1	170	11	78	11	4	29	4	30	9	30	20	1	27	4	(29)	30	35,000	5	52
	MEAD 102	4,209	7	31	7	218	7	500	1	5	22	7	10	17	8	5	18	18	14	26	8	20,500	8	(0)
	SCOTT PAPER 109	4,122	8	20	14	234	6	25	20	6	19	5	26	15	14	9	11	22	9	14	11	25,400	7	2
	BOISE CASCADE 113	3,821	9	2	29	183	10	80	10	5	25	5	25	12	27	4	24	15	19	17	9	20,244	9	(13)
	STONE CONTAINER 133	3,233	10	59	2	161	12	356	2	5	23	7	13	22	4	15	2	31	1	28	7	18,800	10	21
	GREAT NORTHERN NEKOOSA 157	2,589	11	27	11	201	9	135	6	8	12	6	22	16	10	8	12	23	7	49	1	16,300	12	16
	UNION CAMP 173	2,308	12	13	21	207	8	60	16	9	5	7	12	14	17	6	17	14	22	10	15	17,492	11	1
	LOUISIANA-PACIFIC 198	1,922	13	28	10	125	16	(33)	31	7	16	6	18	12	26	7	16	14	21	(8)	28	15,000	14	18
	WESTVACO 201	1,904	14	5	28	146	14	35	18	8	13	7	17	12	23	8	14	17	16	5	21	14,670	15	(3)
	FORT HOWARD 210	1,758	15	13	20	158	13	8	29	9	6	7	11	12	24	11	6	19	12	(23)	29	15,925	13	(4)
	TEMPLE-INLAND 223	1,603	16	21	13	141	15	75	12	9	8	8	8	15	13	—		—		7	17	11,600	20	5
	AVERY INTERNATIONAL 237	1,466	17	30	8	35	28	(29)	30	2	31	3	31	7	31	7	15	21	10	5	20	11,960	19	7
	WILLAMETTE INDUSTRIES 239	1,432	18	19	15	121	17	63	14	8	9	10	6	20	6	10	9	17	17	9	16	8,660	21	3
	SONOCO PRODUCTS 265	1,312	19	36	4	61	26	12	26	5	26	7	15	16	11	12	5	26	5	14	13	14,199	16	18
	NORTEK 267	1,303	20	35	5	(7)		—		—		—		—		—		16	18	(46)	31	12,000	18	17
	ESSELTE BUSINESS SYSTEMS 276	1,242	21	28	9	57	27	25	22	5	27	6	23	13	19	—		—		6	18	13,090	17	8
	BOWATER 279	1,231	22	34	6	81	22	64	13	7	15	5	28	10	28	—		—		(1)	25	5,000	27	4
	JEFFERSON SMURFIT 301	1,099	23	5	26	92	19	229	4	8	10	13	2	42	1	—		—		33	4	7,800	22	—
	FEDERAL PAPER BOARD 319	1,026	24	8	24	66	24	257	3	6	17	6	24	13	22	12	4	23	6	45	2	5,800	26	2
	POTLATCH 330	992	25	2	30	88	20	25	21	9	7	7	16	14	18	4	21	11	24	1	23	7,127	25	(11)
	BEMIS 342	930	26	8	25	32	30	25	23	3	30	6	21	15	15	4	25	27	3	39	3	7,604	23	(4)
	CONSOLIDATED PAPERS 382	743	27	14	18	96	18	9	28	13	3	12	4	16	12	13	3	28	2	12	14	4,374	29	0
	DENNISON MANUFACTURING 391	708	28	1	31	34	29	14	25	5	24	7	14	15	16	4	20	17	15	(1)	26	7,371	24	(7)
	CHESAPEAKE 401	676	29	13	22	30	31	120	7	4	28	5	27	13	21	9	10	18	13	0	24	3,905	30	(14)
	LONGVIEW FIBRE 443	569	30	17	17	65	25	95	8	11	4	12	3	23	3	10	8	15	20	30	5	3,350	31	2
	TAMBRANDS 462	539	31	11	23	77	23	11	27	14	2	19	1	24	2	8	13	19	11	1	22	4,700	28	(2)
	GEORGIA KRAFT 474	511	32	(8)	32	87	21	216	5	17	1	12	5	17	7	—		—		—		2,100	32	(31)
	TOTAL	80,580				4,978																525,363		
	MEDIAN	1,534		18		125		60		7		7		15		8		18		9		13,645		2
10	**FURNITURE** 8 COMPANIES																							
	MASCO 193	2,023	1	39	2	219	1	8	5	11	1	8	6	16	3	13	4	18	6	(25)	8	27,000	1	29
	MOHASCO 364	807	2	6	8	13	8	(20)	8	2	8	3	8	6	8	2	8	14	7	(4)	4	10,647	2	(13)
	LEGGETT & PLATT 406	649	3	11	5	37	2	8	4	6	4	10	3	18	2	15	3	23	3	(13)	6	9,800	3	15
	OHIO MATTRESS 429	598	4	101	1	23	6	101	1	4	7	4	7	10	6	19	2	27	2	(18)	7	5,540	7	121
	MILLER (HERMAN) 439	574	5	8	7	33	3	(12)	6	6	3	10	4	16	4	24	1	27	1	(2)	3	4,982	8	13
	HON INDUSTRIES 453	555	6	10	6	25	5	(15)	7	4	6	10	2	20	1	9	6	20	5	9	2	6,144	6	6
	KIMBALL INTERNATIONAL 492	477	7	21	3	30	4	15	2	6	2	10	1	15	5	11	5	22	4	27	1	7,444	5	11
	BASSETT FURNITURE 494	475	8	13	4	22	7	14	3	5	5	8	5	9	7	5	7	14	8	(10)	5	9,000	4	8
	TOTAL	6,159				403																80,557		
	MEDIAN	586		12		27		8		5		9		15		12		21		(7)		8,222		12
11	**INDUSTRIAL AND FARM EQUIPMENT** 34 COMPANIES																							
	CATERPILLAR 48	8,180	1	12	18	350	1	361	4	4	10	5	16	10	16	(4)	17	4	24	56	2	54,463	1	1
	DEERE 108	4,135	2	18	13	(99)		—		—		—		—		—		8	17	53	3	37,931	3	1
	AMERICAN STANDARD 123	3,439	3	3	25	127	3	(33)	22	4	11	5	14	15	9	2	13	13	12	(12)	23	39,300	2	1

BY INDUSTRY

INDUSTRY TABLE NUMBER	COMPANY 500 RANK	RANKED WITHIN INDUSTRY BY 11 MEASURES																						
		SALES				PROFITS				PROFITS AS % OF						EARNINGS PER SHARE		TOTAL RETURN TO INVESTORS				EMPLOYEES		
										Sales		Assets		Equity		1977-87 annual growth rate		1977-87 annual average		1987				
		$ Mil.	Rank	% change from 1986	Rank	$ Mil.	Rank	% change from 1986	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	Number	Rank	% change from 1986
	DRESSER INDUSTRIES 138	3,120	4	(15)	33	49	13	409	3	2	22	2	22	3	23	(12)	19	5	22	37	8	30,800	4	(22)
	BRUNSWICK 140	3,086	5	80	1	169	2	53	11	5	4	9	4	20	6	23	1	28	2	(12)	23	28,400	6	6
	CUMMINS ENGINE 148	2,767	6	20	9	14	23	—		1	25	1	25	2	24	(24)	22	6	18	(27)	29	24,500	7	7
	INGERSOLL-RAND 153	2,648	7	(5)	29	118	4	25	16	4	9	5	15	10	17	(1)	14	10	16	64	1	29,556	5	(1)
	BLACK & DECKER 195	1,935	8	8	22	56	11	781	2	3	17	3	19	9	19	(3)	16	5	21	18	13	19,700	10	(9)
	BAKER HUGHES 197	1,924	9	24	8	(255)		—		—		—		—		—		4	23	18	14	21,191	8	42
	TRINOVA 216	1,682	10	16	16	75	6	(39)	23	4	8	6	12	12	13	3	10	19	7	37	8	20,763	9	7
	DOVER 225	1,586	11	10	20	112	5	33	15	7	3	10	1	17	7	12	5	22	6	43	5	17,592	11	6
	OUTBOARD MARINE 269	1,289	12	33	4	62	9	331	5	5	6	6	9	12	12	8	6	12	13	(17)	26	11,609	15	25
	CRANE 270	1,284	13	7	23	59	10	54	10	5	7	9	3	23	4	3	12	14	9	(1)	21	11,245	17	(2)
	TIMKEN 280	1,230	14	16	15	10	25	277	6	1	24	1	24	1	25	(19)	20	6	19	42	6	16,721	12	1
	FOSTER WHEELER 284	1,219	15	(3)	27	3	26	(89)	24	0	26	0	26	1	26	(20)	21	10	15	7	19	9,700	20	(14)
	AM INTERNATIONAL 293	1,163	16	69	2	12	24	119	8	1	23	1	23	5	22	—		(11)	29	(25)	28	11,968	14	(6)
	HARNISCHFEGER INDUSTRIES 314	1,049	17	26	7	23	16	1,649	1	2	21	2	21	7	20	(9)	18	3	26	30	10	11,400	16	14
	CLARK EQUIPMENT 315	1,048	18	10	21	(17)		—		—		—		—		—		1	28	22	12	8,341	25	(12)
	FIGGIE INTERNATIONAL 320	1,023	19	11	19	49	12	16	17	5	5	7	7	15	8	16	4	27	3	39	7	16,400	13	1
	YORK INTERNATIONAL 333	963	20	40	3	28	14	236	7	3	18	5	13	13	10	—		—		48	4	9,000	22	36
	TECUMSEH PRODUCTS 337	951	21	16	17	72	7	41	13	8	2	9	2	12	11	6	8	14	10	10	16	11,102	18	11
	CINCINNATI MILACRON 357	828	22	(3)	26	(80)		—		—		—		—		—		15	8	8	17	9,275	21	(3)
	PENTAIR 368	789	23	27	6	22	17	44	12	3	20	5	17	10	14	3	9	22	5	(17)	25	6,200	27	(16)
	BRIGGS & STRATTON 369	785	24	5	24	27	15	(22)	21	3	13	6	11	9	18	(2)	15	6	20	(20)	27	8,611	23	4
	FUQUA INDUSTRIES 373	772	25	(7)	30	63	8	59	9	8	1	8	5	20	5	21	2	33	1	27	11	11,000	19	—
	ROPER 389	714	26	16	14	20	18	37	14	3	19	8	6	25	2	19	3	24	4	(14)	24	4,750	31	13
	ALLIS-CHALMERS 394	699	27	(9)	32	(29)		—		—		—		—		—		(25)	30	(57)	30	8,560	24	(22)
	JOY TECHNOLOGIES 403	664	28	(4)	28	—		—		—		—		—		—		—		—		7,300	26	—
	HENLEY MANUFACTURING 423	605	29	(8)	31	19	19	—		3	15	3	20	5	21	—		—		—		3,700	33	—
	COLEMAN 428	598	30	19	10	19	20	11	19	3	16	5	18	10	15	3	11	13	11	8	18	5,811	28	7
	JEPSON 464	530	31	19	11	18	21	14	18	3	12	6	10	27	1	—		—		—		5,740	29	14
	TORO 469	521	32	28	5	17	22	10	20	3	14	7	8	24	3	8	7	11	14	6	20	2,764	34	15
	ALLIED PRODUCTS 482	497	33	18	12	(3)		—		—		—		—		—		4	25	(60)	31	5,200	30	15
	CAMERON IRON WORKS 489	485	34	(21)	34	(110)		—		—		—		—		—		1	27	13	15	4,578	32	(19)
	TOTAL	54,208				1,000																525,171		
	MEDIAN	1,049		14		38		42		3		5		11		3		10		10		11,174		1
12	**JEWELRY, SILVERWARE** 1 COMPANY																							
	JOSTENS 410	638	1	10	1	45	1	11	1	7	1	12	1	40	1	14	1	22	1	2	1	7,969	1	(12)
13	**LEATHER** N.A.																							
14	**METAL PRODUCTS** 19 COMPANIES																							
	TRIANGLE INDUSTRIES 98	4,336	1	63	4	52	12	304	4	1	17	1	17	12	14	—		35	1	6	14	24,000	3	4
	GILLETTE 135	3,167	2	12	11	230	1	1,355	1	7	4	8	5	38	1	4	12	23	7	18	6	30,100	2	(6)
	EMHART 164	2,455	3	17	6	107	2	—		4	14	5	13	13	13	4	14	17	14	35	3	30,306	1	(11)
	STANLEY WORKS 209	1,763	4	14	7	87	6	10	15	5	13	6	12	14	11	8	11	18	13	4	15	19,142	4	19
	CROWN CORK & SEAL 213	1,718	5	6	17	88	5	11	13	5	12	8	6	14	12	10	10	15	15	2	17	12,354	7	(0)
	ILLINOIS TOOL WORKS 214	1,698	6	77	3	106	3	33	10	6	7	8	9	17	7	14	3	23	6	29	4	13,600	6	(1)
	MASCO INDUSTRIES 236	1,470	7	106	1	44	13	372	2	3	15	2	16	11	16	—		—		(14)	18	15,000	5	13
	HARSCO 291	1,169	8	3	18	63	8	36	8	5	10	8	10	14	10	4	13	18	12	11	10	11,000	9	2
	TYCO LABORATORIES 297	1,116	9	40	5	27	17	(29)	17	2	16	5	14	11	15	12	6	33	2	13	9	10,581	10	2
	BALL 311	1,054	10	(2)	19	66	7	13	12	6	6	8	7	17	9	13	5	27	5	3	16	6,900	16	(23)
	HOUSEHOLD MFG. 321	1,020	11	12	12	58	9	—		6	8	8	8	18	6	—		—		—		10,000	11	(9)
	INTERLAKE 358	823	12	12	13	54	11	67	6	7	5	8	11	19	3	11	7	21	10	13	8	7,834	13	7
	SNAP-ON TOOLS 378	754	13	13	10	89	4	35	9	12	1	14	1	19	2	14	4	21	9	38	2	6,948	15	5
	HILLENBRAND INDUSTRIES 384	725	14	13	9	57	10	14	11	8	2	9	4	18	5	16	1	30	4	8	12	7,100	14	3
	NEWELL 386	720	15	79	2	37	15	55	7	5	11	4	15	10	17	11	8	22	8	7	13	12,000	8	143
	BUTLER MANUFACTURING 418	615	16	7	16	4	19	3	16	1	19	1	18	3	18	(13)	16	9	17	15	7	3,731	19	(1)
	PHILIPS INDUSTRIES 432	593	17	10	15	33	16	11	14	6	9	10	2	18	4	14	2	33	3	26	5	8,157	12	11
	STANADYNE 458	544	18	10	14	42	14	98	5	8	3	10	3	17	8	11	9	15	16	11	11	5,300	18	7
	TRINITY INDUSTRIES 485	491	19	13	8	4	18	360	3	1	18	1	19	2	19	(12)	15	20	11	60	1	6,000	17	11
	TOTAL	26,231				1,248																240,053		
	MEDIAN	1,054		13		57		35		5		8		14		11		21		12		10,581		3

THE FORTUNE 500

RANKED WITHIN INDUSTRY BY 11 MEASURES

INDUSTRY TABLE NUMBER	COMPANY 500 RANK	SALES				PROFITS				PROFITS AS % OF						EARNINGS PER SHARE		TOTAL RETURN TO INVESTORS				EMPLOYEES		
										Sales		Assets		Equity		1977-87 annual growth rate		1977-87 annual average		1987				
		$ Mil.	Rank	% change from 1986	Rank	$ Mil.	Rank	% change from 1986	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	Number	Rank	% change from 1986
15	**METALS** 24 COMPANIES																							
	ALUMINUM CO. OF AMERICA 51	7,767	1	66	3	200	6	(21)	12	3	14	2	14	5	13	(2)	8	12	9	41	12	55,000	1	54
	LTV 56	7,582	2	4	15	503	1	—		7	4	9	6	—		—		(8)	19	54	10	48,200	2	(0)
	BETHLEHEM STEEL 89	4,621	3	7	13	174	7	—		4	13	4	13	14	7	—		2	14	168	2	34,400	3	(8)
	REYNOLDS METALS 101	4,284	4	18	7	220	4	14	9	5	9	5	11	14	9	7	5	17	6	142	3	27,300	4	5
	INLAND STEEL INDUSTRIES 122	3,453	5	5	14	145	8	653	2	4	11	5	10	10	11	(0)	7	2	13	61	9	20,740	5	(9)
	AMAX 124	3,434	6	138	1	51	11	258	4	1	16	1	17	4	14	(7)	11	1	16	65	8	19,856	7	(8)
	ARMCO 143	2,927	7	(5)	18	118	9	—		4	12	4	12	16	5	(6)	10	(2)	17	120	5	20,600	6	(1)
	KAISERTECH 176	2,227	8	(0)	17	(362)		—		—		—		—		—		1	15	(20)	20	12,500	9	(5)
	PHELPS DODGE 221	1,612	9	91	2	206	5	235	5	13	3	9	5	15	6	24	2	10	10	127	4	8,680	10	(1)
	PENN CENTRAL 242	1,421	10	(40)	24	36	15	(77)	14	3	15	1	16	2	16	—		—		(12)	17	15,700	8	(48)
	ASARCO 255	1,355	11	28	4	279	3	2,956	1	21	2	13	2	23	2	—		9	11	92	6	7,570	13	8
	WEIRTON STEEL 260	1,329	12	13	8	81	10	79	7	6	5	12	3	38	1	—		—		—		8,100	12	(4)
	CYCLOPS INDUSTRIES 303	1,098	13	(24)	22	(17)		—		—		—		—		—		—		—		5,464	17	(41)
	WHEELING-PITTSBURGH 326	1,001	14	7	12	(66)		—		—		—		—		—		(3)	18	(13)	18	6,519	14	(6)
	ALLEGHENY LUDLUM 350	867	15	18	6	46	13	54	8	5	7	7	8	22	3	—		—		—		5,400	19	(4)
	NUCOR 352	851	16	13	9	51	12	9	10	6	6	8	7	12	10	14	3	27	1	31	14	4,600	20	5
	AMSTED INDUSTRIES 359	823	17	2	16	(19)		—		—		—		—		—		—		—		8,300	11	—
	WORTHINGTON INDUSTRIES 362	819	18	9	11	42	14	0	11	5	8	9	4	16	4	11	4	19	3	4	16	5,800	16	2
	HANDY & HARMAN 422	608	19	9	10	8	17	—		1	17	2	15	7	12	(4)	9	14	7	(18)	19	6,243	15	9
	TEXAS INDUSTRIES 433	589	20	(9)	21	1	20	(94)	15	0	20	0	20	1	18	—		18	4	39	13	3,360	23	(12)
	NEWMONT MINING 450	559	21	(33)	23	341	2	359	3	61	1	17	1	—		57	1	24	2	87	7	2,650	24	(60)
	ROBERTSON (H.H.) 451	556	22	(5)	19	3	19	—		0	19	1	18	2	15	(13)	12	5	12	23	15	5,401	18	(16)
	LUKENS 478	503	23	24	5	22	16	147	6	4	10	7	9	14	8	5	6	18	5	236	1	3,552	22	6
	CARPENTER TECHNOLOGY 490	481	24	(7)	20	4	18	(42)	13	1	18	1	19	1	17	(17)	13	12	8	47	11	3,782	21	(14)
	TOTAL	50,765				2,065																339,717		
	MEDIAN	1,213		7		66		54		4		5		13		(0)		10		51		7,835		(4)
16	**MINING, CRUDE-OIL PRODUCTION** 13 COMPANIES																							
	KOPPERS 224	1,591	1	(6)	11	11	10	(86)	8	1	11	1	10	3	10	(1)	4	9	5	10	8	10,753	1	(2)
	FREEPORT-MCMORAN 230	1,514	2	140	1	249	1	868	1	16	2	8	3	34	2	26	1	24	1	49	2	6,434	3	43
	UNION TEXAS 274	1,257	3	0	8	56	5	—		4	5	3	5	42	1	—		—		—		1,745	12	(1)
	INSPIRATION RESOURCES 275	1,243	4	13	4	25	8	(35)	6	2	9	3	6	7	6	—		—		42	4	5,000	6	1
	MAXUS ENERGY 285	1,217	5	(60)	13	(540)		—		—		—		—		—		(5)	8	(27)	12	2,158	9	(66)
	VULCAN MATERIALS 310	1,063	6	11	5	116	3	25	3	11	3	13	2	20	4	12	2	24	2	8	9	5,999	4	(5)
	LOUISIANA LAND & EXP. 361	819	7	0	9	25	7	—		3	7	2	9	4	7	(11)	6	11	4	29	6	835	13	(0)
	CYPRUS MINERALS 367	795	8	(2)	10	26	6	24	4	3	6	2	7	3	9	—		—		49	3	5,268	5	3
	NERCO 411	632	9	6	6	60	4	5	5	10	4	6	4	17	5	—		—		20	7	2,231	8	4
	WESTMORELAND COAL 417	617	10	3	7	(43)		—		—		—		—		—		(6)	9	(7)	10	1,902	11	(9)
	MITCHELL ENERGY 434	588	11	(30)	12	8	11	(83)	7	1	10	0	11	1	11	(11)	5	7	6	(7)	11	2,300	7	(23)
	HOMESTAKE MINING 471	516	12	66	2	146	2	549	2	28	1	16	1	21	3	3	3	13	3	40	5	1,992	10	(2)
	CLEVELAND-CLIFFS 496	467	13	58	3	13	9	—		3	8	2	8	3	8	(12)	7	(2)	7	57	1	8,328	2	(6)
	TOTAL	12,321				152																54,945		
	MEDIAN	819		3		26		14		3		3		7		(1)		9		25		2,300		(2)
17	**MOTOR VEHICLES AND PARTS** 17 COMPANIES																							
	GENERAL MOTORS 1	101,782	1	(1)	17	3,551	2	21	8	3	7	4	11	11	10	(1)	10	7	12	(1)	8	813,400	1	(7)
	FORD MOTOR 3	71,643	2	14	8	4,625	1	41	6	6	1	10	1	25	2	11	2	20	3	39	1	350,320	2	(8)
	CHRYSLER 10	26,258	3	17	6	1,290	3	(8)	13	5	3	6	4	20	3	17	1	17	6	(8)	9	122,745	3	7
	DANA 107	4,142	4	12	10	144	4	68	4	3	8	5	8	16	6	3	8	13	8	1	7	37,500	4	1
	NAVISTAR INTERNATIONAL 120	3,530	5	5	13	33	10	1,821	1	1	15	2	15	5	15	(42)	13	(16)	13	(11)	10	14,918	7	(1)
	FRUEHAUF 147	2,785	6	4	15	(41)		—		—		—		—		—		—		(44)	17	15,936	6	(39)
	PACCAR 166	2,424	7	35	4	112	5	107	3	5	4	9	2	14	7	4	5	23	1	25	4	10,599	11	31
	MACK TRUCKS 205	1,858	8	9	11	4	16	—		0	16	0	16	1	16	—		—		9	6	9,483	12	(13)
	ARVIN INDUSTRIES 252	1,373	9	38	3	48	6	15	9	3	9	6	5	11	9	1	9	14	7	(29)	13	16,529	5	(7)
	ECHLIN 299	1,100	10	22	5	46	7	(7)	12	4	5	5	7	8	13	5	4	11	9	(26)	12	13,500	9	24
	FEDERAL-MOGUL 309	1,075	11	14	9	41	8	1,041	2	4	6	5	9	12	8	4	7	18	5	(13)	11	14,393	8	3
	SMITH (A.O.) 327	999	12	4	16	18	14	(36)	15	2	14	3	13	6	14	(4)	12	8	10	(31)	15	11,100	10	(4)
	DANAHER 365	803	13	53	2	19	12	23	7	2	13	3	12	18	5	(4)	11	21	2	37	2	7,950	16	14
	SEALED POWER 372	774	14	16	7	26	11	(8)	14	3	10	5	10	9	12	6	3	18	4	18	5	7,594	17	8

RANKED WITHIN INDUSTRY BY 11 MEASURES

INDUSTRY TABLE NUMBER COMPANY 500 RANK	SALES				PROFITS				PROFITS AS % OF						EARNINGS PER SHARE		TOTAL RETURN TO INVESTORS				EMPLOYEES		
	$ Mil.	Rank	% change from 1986	Rank	$ Mil.	Rank	% change from 1986	Rank	Sales %	Rank	Assets %	Rank	Equity %	Rank	1977-87 annual growth rate %	Rank	1977-87 annual average %	Rank	1987 %	Rank	Number	Rank	% change from 1986
EAGLE-PICHER INDUSTRIES 399	677	15	4	14	40	9	3	11	6	2	8	3	19	4	4	6	7	11	(30)	14	8,300	14	5
PULLMAN 413	629	16	8	12	18	15	9	10	3	12	2	14	10	11	—		—		(37)	16	8,983	13	63
HARVARD INDUSTRIES 449	559	17	78	1	19	13	55	5	3	11	6	6	28	1	—		—		36	3	8,100	15	69
TOTAL	222,409				9,993																1,471,350		
MEDIAN	1,373		14		41		21		3		5		12		4		14		(8)		13,500		3
18 PETROLEUM REFINING 31 COMPANIES																							
EXXON 2	76,416	1	9	14	4,840	1	(10)	12	6	4	7	4	14	5	10	1	21	3	14	6	100,000	3	(2)
MOBIL 5	51,223	2	14	7	1,258	3	(11)	13	2	16	3	12	7	15	3	9	17	7	2	16	120,600	1	(5)
TEXACO 7	34,372	3	9	15	(4,407)		—		—		—		—		—		11	14	6	14	50,164	6	(3)
CHEVRON 11	26,015	4	7	16	1,007	6	41	6	4	10	3	13	6	18	(0)	13	14	11	(8)	19	51,697	5	1
SHELL OIL 13	20,852	5	24	4	1,230	4	39	7	6	5	5	8	8	14	—		—		—		33,184	10	2
AMOCO 14	20,174	6	10	12	1,360	2	82	3	7	3	5	6	11	10	4	6	17	6	10	10	46,774	7	(0)
ATLANTIC RICHFIELD 18	16,281	7	12	10	1,224	5	99	2	8	1	5	7	21	3	9	2	16	8	21	5	25,800	11	(3)
TENNECO 21	15,075	8	4	18	(218)		—		—		—		—		—		10	16	11	8	104,000	2	3
BP AMERICA 22	14,611	9	58	1	564	7	—		4	11	2	16	10	13	—		—		—		44,887	8	13
USX 23	13,898	10	(1)	23	219	10	—		2	20	1	22	4	20	(11)	17	5	23	44	1	53,522	4	(16)
PHILLIPS PETROLEUM 32	10,721	11	10	13	35	20	(85)	16	0	23	0	23	2	23	(25)	20	10	17	24	4	22,500	13	3
SUN 43	8,691	12	(7)	29	348	8	(10)	11	4	9	3	14	7	17	(1)	14	15	10	(0)	17	22,611	12	(4)
UNOCAL 46	8,466	13	13	8	181	11	3	8	2	17	2	17	10	12	(2)	15	12	13	9	11	18,130	14	1
COASTAL 57	7,414	14	11	11	113	13	58	4	2	21	1	18	13	6	3	8	22	1	13	7	17,800	15	8
ASHLAND OIL 60	6,871	15	(2)	24	133	12	(36)	14	2	19	3	11	13	7	1	12	17	5	6	15	41,800	9	22
AMERADA HESS 87	4,785	16	19	5	230	9	—		5	6	4	10	11	11	2	10	10	15	7	13	7,900	17	2
AGWAY 132	3,265	17	(7)	28	—		—		—		—		—		—		—		—		17,441	16	2
KERR-MCGEE 156	2,608	18	3	20	81	16	—		3	13	3	15	6	19	(3)	16	8	19	33	3	7,670	19	4
FARMLAND INDUSTRIES 158	2,580	19	(4)	25	—		—		—		—		—		—		—		—		5,600	22	(15)
AMERICAN PETROFINA 161	2,484	20	27	3	83	15	—		3	12	5	9	11	9	6	4	12	12	36	2	3,369	26	0
PENNZOIL 206	1,786	21	0	22	44	19	(3)	9	2	15	1	19	7	16	(11)	19	22	2	9	12	6,200	21	(1)
MAPCO 227	1,581	22	1	21	108	14	46	5	7	2	8	2	21	2	5	5	6	22	(17)	22	4,907	24	(4)
MURPHY OIL 235	1,474	23	12	9	(44)		—		—		—		—		—		9	18	(5)	18	4,636	25	16
WITCO 240	1,428	24	5	17	63	17	(3)	10	4	8	6	5	12	8	8	3	21	4	(11)	20	7,760	18	(3)
TOSCO 290	1,187	25	52	2	53	18	201	1	4	7	9	1	26	1	2	11	(10)	24	(13)	21	860	30	(4)
FARMERS UNION CENTRAL 295	1,138	26	(7)	27	—		—		—		—		—		—		—		—		2,887	27	4
CROWN CENTRAL 305	1,087	27	3	19	32	21	—		3	14	8	3	19	4	4	7	7	21	11	9	5,300	23	(7)
PACIFIC RESOURCES 338	950	28	17	6	6	23	(78)	15	1	22	1	21	3	21	(11)	18	15	9	(31)	24	902	29	3
QUAKER STATE 353	848	29	(6)	26	(48)		—		—		—		—		—		8	20	(37)	25	6,352	20	0
VALERO ENERGY 414	629	30	(67)	31	13	22	—		2	18	1	20	3	22	—		—		(27)	23	1,988	28	(4)
NATIONAL COOP. REFINERY 448	561	31	(22)	30	—		—		—		—		—		—		—		—		560	31	(2)
TOTAL	359,471				8,510																837,801		
MEDIAN	4,785		7		133		0		3		3		10		2		12		7		17,441		0
19 PHARMACEUTICALS 17 COMPANIES																							
JOHNSON & JOHNSON 50	8,012	1	14	6	833	3	153	1	10	12	13	8	24	7	13	6	14	15	16	8	78,200	1	1
BAXTER TRAVENOL LABS. 66	6,223	2	10	11	331	10	(25)	15	5	16	4	15	9	15	7	13	11	16	20	6	61,600	2	—
BRISTOL-MYERS 76	5,401	3	12	9	710	4	20	5	13	9	15	4	22	9	14	4	21	6	4	13	34,100	7	(2)
MERCK 80	5,061	4	23	2	906	1	34	3	18	1	16	3	43	1	13	5	23	3	30	3	31,100	9	1
AMERICAN HOME PRODUCTS 82	5,028	5	2	16	845	2	9	11	17	2	18	2	33	4	11	9	16	12	(1)	15	44,223	3	2
PFIZER 83	4,920	6	10	13	690	5	5	12	14	7	10	12	18	13	13	7	17	10	(21)	17	40,700	4	2
ABBOTT LABORATORIES 97	4,388	7	15	5	633	7	17	7	14	6	14	5	30	6	19	3	24	2	8	10	37,828	5	6
SMITHKLINE BECKMAN 100	4,329	8	16	4	570	8	9	10	13	8	13	7	36	2	20	2	19	9	5	12	36,323	6	8
LILLY (ELI) 111	4,049	9	9	14	644	6	15	8	16	5	12	9	21	11	11	10	20	7	7	11	25,700	10	(12)
WARNER-LAMBERT 121	3,485	10	12	8	296	13	(4)	13	8	14	12	10	34	3	6	15	15	13	18	7	33,501	8	7
SCHERING-PLOUGH 149	2,699	11	13	7	316	11	19	6	12	11	10	13	22	10	6	14	17	11	22	5	21,700	11	(8)
UPJOHN 160	2,521	12	11	10	305	12	21	4	12	10	10	11	18	12	12	8	21	5	(2)	16	20,550	12	(0)
STERLING DRUG 174	2,301	13	16	3	197	14	15	9	9	13	—		—		9	12	19	8	22	4	—		—
SQUIBB 182	2,157	14	(15)	17	358	9	(10)	14	17	3	13	6	23	8	11	11	22	4	12	9	16,810	13	(1)
RORER GROUP 343	929	15	10	12	54	16	(57)	16	6	15	4	14	13	14	4	16	15	14	(1)	14	7,400	14	(2)
ROBINS (A.H.) 351	856	16	8	15	(1,632)		—		—		—		—		—		10	17	160	1	6,400	15	—
MARION LABORATORIES 430	597	17	50	1	97	15	76	2	16	4	21	1	32	5	23	1	42	1	31	2	3,043	16	19
TOTAL	62,956				6,153																499,178		
MEDIAN	4,049		12		464		15		13		13		23		12		19		12		32,301		1

THE FORTUNE 500

INDUSTRY TABLE NUMBER	COMPANY 500 RANK	RANKED WITHIN INDUSTRY BY 11 MEASURES: SALES				PROFITS				PROFITS AS % OF						EARNINGS PER SHARE		TOTAL RETURN TO INVESTORS				EMPLOYEES		
										Sales		Assets		Equity		1977-87 annual growth rate		1977-87 annual average		1987				
		$ Mil.	Rank	% change from 1986	Rank	$ Mil.	Rank	% change from 1986	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	Number	Rank	% change from 1986
20	**PUBLISHING, PRINTING** 22 COMPANIES																							
	TIME INC. 104	4,193	1	11	9	250	3	(34)	19	6	18	6	17	20	7	7	18	20	15	19	7	20,000	5	(7)
	TIMES MIRROR 136	3,155	2	8	18	266	2	(35)	20	8	10	9	11	18	13	12	14	23	11	15	8	27,915	2	(0)
	GANNETT 141	3,079	3	10	12	319	1	16	11	10	5	9	10	20	9	13	10	20	16	9	10	36,000	1	—
	DONNELLEY (R.R.) & SONS 162	2,483	4	11	10	218	4	38	5	9	9	10	4	19	12	16	8	22	12	9	11	22,000	4	7
	TRIBUNE 181	2,160	5	6	20	142	12	(52)	21	7	15	5	20	13	16	—		—		46	4	14,000	8	—
	KNIGHT-RIDDER 188	2,073	6	8	16	155	10	11	13	7	12	8	13	17	14	11	16	18	17	(13)	16	24,000	3	—
	MCGRAW-HILL 211	1,751	7	11	11	165	8	7	15	9	8	10	7	20	8	12	13	22	13	(9)	14	15,892	6	4
	NEW YORK TIMES 215	1,690	8	8	19	160	9	21	9	9	7	9	9	19	10	18	6	29	4	(12)	15	10,500	10	5
	WASHINGTON POST 263	1,315	9	8	17	187	7	86	4	14	4	16	3	30	2	21	3	28	6	21	6	6,400	17	—
	DOW JONES 264	1,314	10	16	6	203	5	11	14	15	3	10	5	24	5	18	7	21	14	(22)	17	9,014	13	28
	HARCOURT BRACE 268	1,291	11	33	2	91	13	28	6	7	14	4	21	—		7	19	12	18	(53)	21	13,000	9	(7)
	AMERICAN GREETINGS 298	1,103	12	9	15	63	15	(15)	17	6	19	6	15	12	18	13	12	11	19	(45)	19	22,000	4	10
	MACMILLAN 336	956	13	17	5	71	14	19	10	7	13	8	14	21	6	15	9	31	3	38	5	9,400	12	9
	DELUXE CHECK PRINTERS 339	948	14	9	13	149	11	23	8	16	2	17	2	30	3	20	4	26	8	(29)	18	15,346	7	14
	BELL & HOWELL 383	727	15	(15)	22	61	16	87	3	8	11	8	12	19	11	11	15	23	10	63	3	8,946	14	(24)
	MEDIA GENERAL 388	715	16	13	7	43	18	151	2	6	17	5	19	12	17	13	11	28	5	72	1	8,300	15	19
	STANDARD REGISTER 405	660	17	18	3	41	19	24	7	6	16	10	8	15	15	28	2	32	2	13	9	6,284	18	(6)
	MEREDITH 427	599	18	12	8	34	20	(28)	18	6	20	6	16	10	20	10	17	23	9	(7)	13	3,156	20	(5)
	REYNOLDS & REYNOLDS 447	563	19	39	1	21	21	(11)	16	4	21	6	18	11	19	6	20	9	20	(49)	20	5,704	19	5
	HARTE-HANKS COMMUN. 452	556	20	(4)	21	(33)		—		—		—		—		—		—		—		9,488	11	(3)
	COMM. CLEARING HOUSE 457	551	21	9	14	53	17	11	12	10	6	10	6	28	4	18	5	27	7	3	12	6,605	16	5
	AFFILIATED PUBLICATIONS 486	490	22	18	4	201	6	204	1	41	1	38	1	62	1	39	1	45	1	64	2	2,934	21	13
	TOTAL	32,372				2,860																296,884		
	MEDIAN	1,197		10		149		16		8		9		19		13		23		9		9,488		5
21	**RUBBER PRODUCTS** 11 COMPANIES																							
	GOODYEAR TIRE & RUBBER 35	10,123	1	(2)	11	771	1	521	1	8	4	9	4	42	1	16	3	20	6	47	2	114,658	1	(6)
	FIRESTONE TIRE & RUBBER 112	3,867	2	4	9	145	3	71	4	4	7	5	8	12	6	8	7	12	9	16	5	53,500	2	(3)
	GENCORP 139	3,101	3	0	10	475	2	265	2	15	1	43	1	—		21	1	19	7	(8)	9	14,100	5	(47)
	PREMARK INTERNATIONAL 178	2,197	4	12	7	72	5	—		3	9	5	9	11	7	—		—		15	6	22,800	3	4
	KNOLL INT'L HOLDINGS 191	2,037	5	78	1	(16)		—		—		—		—		—		—		—		19,000	4	—
	ARMTEK 288	1,198	6	50	3	20	9	—		2	10	3	10	10	8	0	8	16	8	28	3	11,130	6	48
	RUBBERMAID 323	1,015	7	28	4	85	4	21	6	8	2	12	3	19	4	15	4	26	4	4	7	6,928	7	14
	COOPER TIRE & RUBBER 402	666	8	15	6	31	8	33	5	5	6	7	6	14	5	12	5	29	1	18	4	5,720	9	6
	CARLISLE 460	543	9	16	5	19	10	(4)	8	3	8	6	7	10	9	8	6	22	5	0	8	4,826	10	(2)
	ENVIRODYNE INDUSTRIES 493	476	10	50	2	39	6	123	3	8	3	9	5	30	2	—		27	3	49	1	4,604	11	2
	STANDARD PRODUCTS 497	465	11	7	8	32	7	16	7	7	5	14	2	25	3	17	2	28	2	(24)	10	5,750	8	1
	TOTAL	25,688				1,671																263,016		
	MEDIAN	1,198		15		55		52		6		8		14		14		22		16		11,130		2
22	**SCIENTIFIC AND PHOTOGRAPHIC EQUIPMENT** 17 COMPANIES																							
	EASTMAN KODAK 25	13,305	1	15	6	1,178	1	215	2	9	7	8	7	20	4	7	9	13	8	10	6	124,400	1	2
	XEROX 34	10,320	2	10	9	578	3	24	5	6	11	5	12	11	11	1	12	8	13	(2)	9	99,032	2	(1)
	MINNESOTA MINING & MFG. 37	9,429	3	10	10	918	2	18	10	10	3	11	3	18	6	8	8	15	6	14	4	82,405	3	1
	POLAROID 208	1,764	4	8	12	116	5	12	13	7	10	7	10	11	12	3	10	9	11	(28)	15	13,662	9	(7)
	GENERAL SIGNAL 222	1,603	5	1	16	69	8	(7)	14	4	13	5	13	8	14	0	13	9	12	10	7	19,126	6	(5)
	BECTON DICKINSON 226	1,582	6	21	2	148	4	22	9	9	5	8	8	17	7	11	5	15	7	3	8	19,900	5	3
	TEKTRONIX 249	1,396	7	3	15	51	12	30	4	4	14	4	14	6	15	1	11	4	14	(26)	14	17,099	7	(11)
	PERKIN ELMER 259	1,334	8	3	14	(18)		—		—		—		—		—		11	10	(4)	12	14,119	8	(3)
	EG&G 277	1,236	9	8	13	55	10	24	6	4	12	11	4	26	1	17	3	24	3	20	3	23,000	4	—
	FISHER SCIENTIFIC GROUP 345	908	10	14	7	31	15	—		3	15	6	11	10	13	—		—		—		6,654	15	(2)
	BAUSCH & LOMB 355	840	11	20	3	85	6	14	11	10	2	9	6	15	9	10	6	16	5	(10)	13	8,300	11	4
	BARD (C.R.) 408	641	12	17	5	62	9	22	8	10	4	13	2	21	2	19	1	24	2	(4)	11	7,600	12	6
	COOPER COS. 415	627	13	12	8	52	11	478	1	8	8	4	15	20	3	—		—		(50)	16	9,400	10	64
	AMETEK 416	620	14	9	11	41	14	13	12	7	9	8	9	16	8	9	7	18	4	12	5	6,952	14	11
	MILLIPORE 465	529	15	19	4	48	13	22	7	9	6	10	5	14	10	12	4	13	9	20	2	5,202	16	7
	FOXBORO 477	504	16	(7)	17	(97)		—		—		—		—		—		3	15	(3)	10	7,050	13	(10)

BY INDUSTRY

INDUSTRY TABLE NUMBER	COMPANY 500 RANK	RANKED WITHIN INDUSTRY BY 11 MEASURES																						
		SALES				PROFITS				PROFITS AS % OF						EARNINGS PER SHARE		TOTAL RETURN TO INVESTORS				EMPLOYEES		
										Sales		Assets		Equity		1977-87 annual growth rate		1977-87 annual average		1987				
		$ Mil.	Rank	% change from 1986	Rank	$ Mil.	Rank	% change from 1986	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	Number	Rank	% change from 1986
	MEDTRONIC 479	502	17	21	1	74	7	38	3	15	1	13	1	19	5	18	2	28	1	23	1	4,952	17	2
	TOTAL	47,141				3,392																468,853		
	MEDIAN	1,236		10		69		22		8		8		16		9		13		1		13,662		1
23	**SOAPS, COSMETICS** 12 COMPANIES																							
	PROCTER & GAMBLE 17	17,000	1	10	10	327	1	(54)	9	2	9	2	9	5	9	(4)	7	12	6	15	2	73,200	1	(2)
	COLGATE-PALMOLIVE 73	5,647	2	13	8	54	6	(70)	10	1	10	2	10	6	8	(9)	8	12	4	(1)	8	37,400	2	(1)
	AVON PRODUCTS 129	3,293	3	14	7	159	2	0	7	5	7	6	7	21	2	(4)	6	1	8	2	7	34,500	3	(2)
	LEVER BROTHERS 145	2,856	4	15	5	7	11	—		0	11	1	11	4	10	—		—		—		6,069	6	16
	REVLON GROUP 167	2,398	5	49	1	—		—		—		—		—		—		—		—		—		—
	CLOROX 296	1,126	6	3	11	105	4	10	6	9	2	11	3	17	5	11	3	21	3	12	3	4,500	8	(12)
	CHESEBROUGH-POND'S 304	1,087	7	(60)	12	76	5	(52)	8	7	4	10	4	—		—		—		—		4,371	9	(81)
	ECOLAB 331	989	8	22	2	52	7	20	4	5	5	5	8	18	4	8	5	12	5	4	5	13,104	4	79
	INT'L FLAVORS 381	746	9	20	3	107	3	25	3	14	1	12	2	16	6	9	4	11	7	22	1	4,119	10	8
	FABERGE 467	524	10	14	6	26	9	55	2	5	6	7	5	23	1	—		—		—		6,600	5	(4)
	ALBERTO CULVER 472	514	11	17	4	18	10	110	1	4	8	7	6	14	7	22	1	26	2	8	4	4,600	7	10
	NOXELL 487	489	12	12	9	44	8	17	5	9	3	15	1	20	3	17	2	29	1	3	6	2,069	11	27
	TOTAL	36,672				975																190,532		
	MEDIAN	1,107		14		54		14		5		7		17		8		12		6		6,069		(1)
24	**TEXTILES** 12 COMPANIES																							
	BURLINGTON HOLDINGS 130	3,279	1	18	6	—		—		—		—		—		—		—		—		44,000	1	2
	ARMSTRONG WORLD IND. 169	2,365	2	23	5	150	1	23	5	6	2	9	2	16	3	15	4	20	5	11	4	24,121	3	11
	WEST POINT-PEPPERELL 189	2,067	3	14	7	72	2	31	3	3	7	5	8	9	9	5	7	18	6	4	5	31,600	2	(2)
	SPRINGS INDUSTRIES 217	1,661	4	10	8	56	4	71	2	3	8	5	7	11	8	13	6	22	4	25	2	23,100	6	(2)
	STEVENS (J.P.) 220	1,615	5	(3)	11	56	3	4	8	3	6	6	6	11	7	3	9	16	8	(21)	8	23,400	5	3
	FIELDCREST CANNON 247	1,400	6	29	3	(4)		—		—		—		—		—		6	9	(56)	10	23,411	4	1
	DWG 286	1,214	7	4	10	18	9	—		2	9	2	9	15	4	5	8	17	7	167	1	17,170	7	8
	UNITED MERCHANTS & MFRS. 375	762	8	(5)	12	(15)		—		—		—		—		—		—		(69)	11	9,000	10	(9)
	SHAW INDUSTRIES 395	694	9	26	4	29	6	18	6	4	5	8	3	19	1	15	3	24	3	(18)	7	6,546	11	19
	DIXIE YARNS 438	581	10	93	1	26	7	96	1	5	3	7	4	13	5	14	5	—		(6)	6	9,800	9	—
	GUILFORD MILLS 461	539	11	30	2	24	8	26	4	4	4	6	5	13	6	21	1	34	1	16	3	3,761	12	12
	RUSSELL 491	480	12	10	9	46	5	7	7	10	1	10	1	17	2	16	2	26	2	(27)	9	10,100	8	1
	TOTAL	16,657				458																226,009		
	MEDIAN	1,307		16		46		24		4		6		13		14		20		(6)		20,135		2
25	**TOBACCO** 5 COMPANIES																							
	PHILIP MORRIS 12	22,279	1	8	4	1,842	1	25	3	8	2	10	2	27	2	19	1	23	3	23	2	113,000	2	2
	RJR NABISCO 19	15,868	2	(7)	5	1,209	2	14	5	8	4	7	3	20	3	10	5	21	4	(6)	5	120,334	1	(3)
	AMERICAN BRANDS 65	6,323	3	20	2	523	3	43	1	8	3	7	4	18	4	12	3	23	2	10	4	43,248	3	(46)
	UNIVERSAL 184	2,104	4	56	1	56	5	19	4	3	5	6	5	17	5	12	4	20	5	19	3	14,000	4	—
	UST 445	564	5	10	3	131	4	26	2	23	1	24	1	33	1	17	2	24	1	27	1	3,323	5	(4)
	TOTAL	47,139				3,761																293,905		
	MEDIAN	6,323		10		523		25		8		7		20		12		23		19		43,248		(4)
26	**TOYS, SPORTING GOODS** 3 COMPANIES																							
	HASBRO 262	1,326	1	(0)	2	48	1	(51)	1	4	1	4	1	8	1	30	1	46	1	(32)	2	8,300	2	12
	MATTEL 322	1,020	2	(4)	3	(113)		—		—		—		—		—		(0)	3	(17)	1	12,700	1	(33)
	COLECO INDUSTRIES 476	504	3	1	1	(105)		—		—		—		—		—		3	2	(54)	3	2,900	3	(24)
	TOTAL	2,851				(170)																23,900		
27	**TRANSPORTATION EQUIPMENT** 4 COMPANIES																							
	FLEETWOOD ENTERPRISES 273	1,259	1	3	2	40	1	1	2	3	1	8	1	13	2	10	1	15	2	(30)	3	10,000	1	—
	MINSTAR 348	877	2	(24)	4	(3)		—		—		—		—		—		22	1	(1)	2	7,500	2	(25)
	INTERNATIONAL CONTROLS 377	760	3	(16)	3	—		—		—		—		—		—		—		—		—		—
	HARLEY-DAVIDSON 398	685	4	132	1	21	2	336	1	3	2	6	2	34	1	—		—		24	1	4,300	3	95
	TOTAL	3,582				58																21,800		
	MEDIAN	819		(6)		30				3		7		23		10		18		(1)		7,500		35

INDUSTRY MEDIANS

RETURN ON SALES

	1987	1986
PHARMACEUTICALS	13.2%	13.1%
PUBLISHING, PRINTING	8.4	8.5
SCIENTIFIC & PHOTOGRAPHIC EQUIP.	8.3	4.7
TOBACCO	8.3	7.0
COMPUTERS (INCL. OFFICE EQUIP.)	8.2	5.5
BEVERAGES	7.0	7.7
BUILDING MATERIALS	6.8	3.6
FOREST PRODUCTS	6.5	4.9
CHEMICALS	6.0	5.2
RUBBER PRODUCTS	5.7	2.3
METAL PRODUCTS	5.4	4.4
FURNITURE	5.2	5.8
ELECTRONICS	5.0	3.4
SOAPS, COSMETICS	4.9	5.4
METALS	4.3	1.5
TEXTILES	4.1	3.0
APPAREL	3.9	3.3
AEROSPACE	3.7	4.1
FOOD	3.5	2.8
MOTOR VEHICLES AND PARTS	3.5	3.0
PETROLEUM REFINING	3.4	2.4
INDUSTRIAL AND FARM EQUIPMENT	3.3	1.2
MINING, CRUDE-OIL PRODUCTION	3.3	3.8
TRANSPORTATION EQUIPMENT	3.1	1.7
THE 500 MEDIAN	4.6	4.1

RETURN ON ASSETS

	1987	1986
PHARMACEUTICALS	12.5%	12.2%
FURNITURE	8.7	9.9
PUBLISHING, PRINTING	8.5	8.7
RUBBER PRODUCTS	8.3	3.3
COMPUTERS (INCL. OFFICE EQUIP.)	8.3	6.4
METAL PRODUCTS	7.9	6.0
SCIENTIFIC & PHOTOGRAPHIC EQUIP.	7.8	5.1
BUILDING MATERIALS	7.4	4.1
TRANSPORTATION EQUIPMENT	7.4	3.2
TOBACCO	7.2	7.6
APPAREL	7.0	6.4
CHEMICALS	6.8	5.7
FOREST PRODUCTS	6.7	4.8
SOAPS, COSMETICS	6.7	6.9
ELECTRONICS	6.6	4.1
FOOD	6.5	6.4
TEXTILES	6.3	3.8
BEVERAGES	6.0	7.6
INDUSTRIAL AND FARM EQUIPMENT	5.4	1.9
METALS	5.3	3.0
MOTOR VEHICLES AND PARTS	5.1	4.3
AEROSPACE	5.0	5.7
PETROLEUM REFINING	3.1	2.0
MINING, CRUDE-OIL PRODUCTION	2.8	2.7
THE 500 MEDIAN	6.0	5.2

RETURN ON STOCKHOLDERS' EQUITY

	1987	1986
TRANSPORTATION EQUIPMENT	23.1%	5.2%
PHARMACEUTICALS	22.7	23.6
TOBACCO	20.0	22.1
PUBLISHING, PRINTING	18.9	18.7
SCIENTIFIC & PHOTOGRAPHIC EQUIP.	16.3	10.3
SOAPS, COSMETICS	16.2	16.7
FOOD	16.1	15.8
FURNITURE	15.2	18.9
FOREST PRODUCTS	14.7	11.8
COMPUTERS (INCL. OFFICE EQUIP.)	14.6	10.8
METAL PRODUCTS	14.3	13.3
CHEMICALS	14.2	11.8
APPAREL	14.1	12.2
ELECTRONICS	14.1	9.8
BEVERAGES	14.0	18.8
BUILDING MATERIALS	13.4	11.5
RUBBER PRODUCTS	13.1	10.8
TEXTILES	12.8	8.1
MOTOR VEHICLES AND PARTS	11.6	10.1
AEROSPACE	11.3	12.4
INDUSTRIAL AND FARM EQUIPMENT	11.2	3.7
METALS	11.1	5.1
PETROLEUM REFINING	10.2	5.8
MINING, CRUDE-OIL PRODUCTION	7.0	7.7
THE 500 MEDIAN	13.2	11.6

INDUSTRY MEDIANS

CHANGES IN SALES

INCREASES	
FOREST PRODUCTS	17.9%
TEXTILES	16.0
COMPUTERS (INCLUDES OFFICE EQUIPMENT)	15.5
RUBBER PRODUCTS	15.3
SOAPS, COSMETICS	14.3
MOTOR VEHICLES AND PARTS	14.2
INDUSTRIAL AND FARM EQUIPMENT	13.8
METAL PRODUCTS	12.6
FURNITURE	11.8
PHARMACEUTICALS	11.7
CHEMICALS	10.9
FOOD	10.5
PUBLISHING, PRINTING	10.5
TOBACCO	10.3
SCIENTIFIC AND PHOTOGRAPHIC EQUIPMENT	10.1
BEVERAGES	9.0
METALS	6.9
PETROLEUM REFINING	6.8
ELECTRONICS	6.7
BUILDING MATERIALS	5.1
AEROSPACE	4.9
MINING, CRUDE-OIL PRODUCTION	3.0
APPAREL	2.4
DECREASES	
TRANSPORTATION EQUIPMENT	6.2%

CHANGES IN PROFITS

INCREASES	
FOREST PRODUCTS	59.7%
METALS	53.6
RUBBER PRODUCTS	51.9
INDUSTRIAL AND FARM EQUIPMENT	42.4
METAL PRODUCTS	35.3
CHEMICALS	29.4
APPAREL	29.0
COMPUTERS (INCLUDES OFFICE EQUIPMENT)	26.9
TOBACCO	24.6
TEXTILES	24.3
SCIENTIFIC AND PHOTOGRAPHIC EQUIPMENT	21.9
MOTOR VEHICLES AND PARTS	20.6
FOOD	19.5
BUILDING MATERIALS	17.2
ELECTRONICS	17.1
PUBLISHING, PRINTING	15.6
PHARMACEUTICALS	15.1
MINING, CRUDE OIL PRODUCTION	14.2
SOAPS, COSMETICS	13.6
BEVERAGES	11.2
FURNITURE	8.0
AEROSPACE	3.9
PETROLEUM REFINING	0.1

TOTAL RETURN TO INVESTORS, 1987

METALS	50.5%
BUILDING MATERIALS	25.2
MINING, CRUDE-OIL PRODUCTION	24.5
TOBACCO	19.2
RUBBER PRODUCTS	15.7
METAL PRODUCTS	12.0
PHARMACEUTICALS	11.7
INDUSTRIAL AND FARM EQUIPMENT	10.0
FOREST PRODUCTS	9.1
PUBLISHING, PRINTING	8.7
CHEMICALS	8.5
PETROLEUM REFINING	6.8
COMPUTERS (INCLUDES OFFICE EQUIPMENT)	6.3
SOAPS, COSMETICS	6.0
FOOD	3.4
ELECTRONICS	2.0
SCIENTIFIC AND PHOTOGRAPHIC EQUIPMENT	0.5
BEVERAGES	0.2
TRANSPORTATION EQUIPMENT	−1.1
TEXTILES	−6.3
FURNITURE	−7.0
MOTOR VEHICLES AND PARTS	−7.7
APPAREL	−18.9
AEROSPACE	−24.5
THE 500 MEDIAN	6.8

WHO DID BEST AND WORST

INDUSTRY MEDIANS

TOTAL RETURN TO INVESTORS 1977-87 ANNUAL AVERAGE

TOBACCO	23.4%
PUBLISHING, PRINTING	22.8
RUBBER PRODUCTS	21.9
METAL PRODUCTS	21.3
APPAREL	21.2
FURNITURE	21.1
COMPUTERS (INCLUDES OFFICE EQUIPMENT)	20.9
FOOD	20.7
TEXTILES	19.6
BEVERAGES	18.9
PHARMACEUTICALS	18.6
TRANSPORTATION EQUIPMENT	18.3
FOREST PRODUCTS	17.8
BUILDING MATERIALS	17.1
AEROSPACE	16.8
CHEMICALS	16.4
ELECTRONICS	16.0
MOTOR VEHICLES AND PARTS	13.8
SCIENTIFIC AND PHOTOGRAPHIC EQUIPMENT	13.2
MINING, CRUDE-OIL PRODUCTION	12.2
SOAPS, COSMETICS	12.0
PETROLEUM REFINING	12.0
INDUSTRIAL AND FARM EQUIPMENT	10.2
METALS	10.0
THE 500 MEDIAN	17.2

SALES PER DOLLAR OF STOCKHOLDERS' EQUITY

TRANSPORTATION EQUIPMENT	$5.51
FOOD	5.32
AEROSPACE	4.21
SOAPS, COSMETICS	3.64
RUBBER PRODUCTS	3.48
MOTOR VEHICLES AND PARTS	3.48
TEXTILES	3.26
APPAREL	3.14
PETROLEUM REFINING	3.05
INDUSTRIAL AND FARM EQUIPMENT	2.98
METAL PRODUCTS	2.93
METALS	2.73
TOBACCO	2.63
FURNITURE	2.61
ELECTRONICS	2.46
CHEMICALS	2.41
FOREST PRODUCTS	2.22
COMPUTERS (INCLUDES OFFICE EQUIPMENT)	2.17
BUILDING MATERIALS	2.14
PUBLISHING, PRINTING	2.13
BEVERAGES	2.06
PHARMACEUTICALS	1.97
SCIENTIFIC AND PHOTOGRAPHIC EQUIPMENT	1.92
MINING, CRUDE-OIL PRODUCTION	1.86
THE 500 MEDIAN	2.77

SALES PER EMPLOYEE

PETROLEUM REFINING	$416,511
MINING, CRUDE-OIL PRODUCTION	252,622
SOAPS, COSMETICS	181,078
FOOD	178,259
CHEMICALS	173,113
BEVERAGES	160,612
METALS	157,107
TOBACCO	150,273
FOREST PRODUCTS	145,637
BUILDING MATERIALS	140,832
TRANSPORTATION EQUIPMENT	125,932
PHARMACEUTICALS	123,535
RUBBER PRODUCTS	107,195
METAL PRODUCTS	105,062
COMPUTERS (INCLUDES OFFICE EQUIP.)	105,004
PUBLISHING, PRINTING	103,331
MOTOR VEHICLES AND PARTS	101,946
AEROSPACE	98,891
INDUSTRIAL AND FARM EQUIPMENT	97,685
SCIENTIFIC AND PHOTOGRAPHIC EQUIP.	94,455
ELECTRONICS	85,115
FURNITURE	75,362
TEXTILES	71,296
APPAREL	52,234
THE 500 MEDIAN	124,392

INDUSTRY TOTALS RANKED BY SIX MEASURES

	SALES		PROFITS		ASSETS		STOCKHOLDERS' EQUITY		MARKET VALUE		EMPLOYEES	
	$ MIL	RANK	$ MIL	RANK	$ MIL	RANK	$ MIL	RANK	$ MIL	RANK	NUMBER	RANK
PETROLEUM REFINING	359,471	1	8,510	4	390,751	1	142,753	1	180,027	1	837,801	6
MOTOR VEHICLES AND PARTS	222,409	2	9,993	2	166,984	3	63,503	4	57,492	8	1,471,350	2
ELECTRONICS	195,603	3	10,855	1	182,215	2	78,544	2	158,517	2	2,046,017	1
FOOD	152,170	4	5,329	7	91,095	6	31,254	7	78,181	6	1,028,418	4
CHEMICALS	135,981	5	8,433	5	132,474	4	54,999	5	89,755	5	834,878	7
AEROSPACE	118,811	6	4,420	9	82,325	7	28,198	9	41,593	12	1,167,506	3
COMPUTERS (INCL. OFFICE EQUIP.)	111,573	7	9,059	3	116,788	5	67,265	3	138,163	3	948,894	5
FOREST PRODUCTS	80,580	8	4,978	8	77,917	8	35,726	6	57,948	7	525,363	8
PHARMACEUTICALS	62,956	9	6,153	6	64,414	9	30,370	8	132,926	4	499,178	10
INDUSTRIAL AND FARM EQUIPMENT	54,208	10	1,000	18	45,248	12	20,172	11	34,288	14	525,171	9
METALS	50,765	11	2,065	14	52,325	10	14,362	14	22,718	16	339,717	13
SCIENTIFIC AND PHOTOGRAPHIC EQUIP.	47,141	12	3,392	11	47,449	11	23,361	10	49,568	9	468,853	11
TOBACCO	47,139	13	3,761	10	44,841	13	16,554	12	41,816	11	293,905	15
SOAPS, COSMETICS	36,672	14	975	19	24,968	17	9,877	16	24,049	15	190,532	21
BEVERAGES	36,277	15	2,759	13	38,582	14	16,045	13	39,552	13	347,041	12
PUBLISHING, PRINTING	32,372	16	2,860	12	34,028	15	12,510	15	46,973	10	296,884	14
BUILDING MATERIALS	30,089	17	1,662	16	25,871	16	9,210	17	14,471	18	211,893	19
METAL PRODUCTS	26,231	18	1,248	17	21,264	18	7,648	18	20,122	17	240,053	17
RUBBER PRODUCTS	25,688	19	1,671	15	18,678	19	4,932	20	10,750	20	263,016	16
TEXTILES	16,657	20	458	21	12,557	21	4,109	21	5,948	23	226,009	18
MINING, CRUDE-OIL PRODUCTION	12,321	21	152	23	17,321	20	6,016	19	11,610	19	54,945	23
APPAREL	11,165	22	486	20	8,143	22	3,553	22	6,752	21	192,298	20
FURNITURE	6,159	23	403	22	5,302	23	2,846	23	6,370	22	80,557	22
TRANSPORTATION EQUIPMENT	3,502	24	58	24	1,369	25	539	25	921	25	21,800	25
TOYS, SPORTING GOODS	2,851	25	(170)	26	2,386	24	662	24	1,078	24	23,900	24
JEWELRY, SILVERWARE	638	26	45	25	361	26	113	26	688	26	7,969	26
TOTAL	1,879,506		90,556		1,705,657		685,119		1,272,278		13,143,948	

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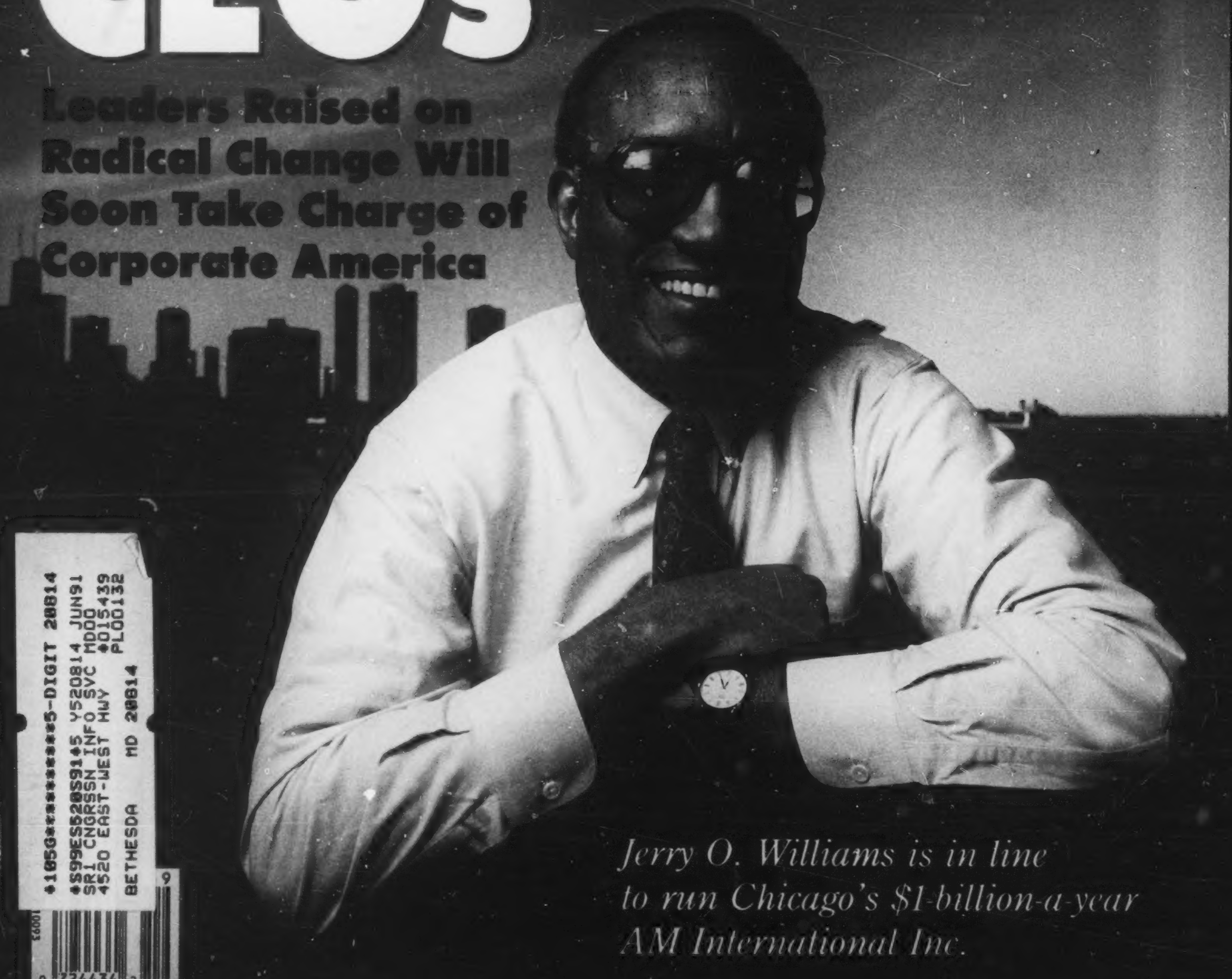
FORTUNE

TOMORROW'S CEOs

Leaders Raised on Radical Change Will Soon Take Charge of Corporate America



Jerry O. Williams is in line to run Chicago's $1-billion-a-year AM International Inc.

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FORTUNE

"I'm the proud father of three baby bears."

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"I think I'm capable of operating anywhere in the world."

PAGE 30

"Bob, *our* morale *isn't* low."

PAGE 52

"I suppose we have wounded some people, but that wasn't the intention."

PAGE 72

"Immigrants tend to be the stronger willed, the more sophisticated, the more adventuresome."

PAGE 89

"I respect the new system—it was badly needed. I put it in place, but I *hate* it."

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Raised on radical change, they're apt to be quite different from their bosses. *by Alex Taylor III*

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THE EDITOR'S DESK

Taylor (right) grills a "suspect": Paul Allaire, next in line to be CEO at Xerox.

COMPANY presidents and other top executives are rational folks. Triskaidekaphobia is for other people. Black cats are no more ominous than tabbies. But these rationalists all seem to believe in one jinx: that even talking about becoming their company's next chief executive will scuttle whatever chances they have. Instead they shroud themselves in invisibility.

Sorry, guys (and they are all men), but your cover is blown by our cover story (see page 30), written by Alex Taylor III and edited by Susan Fraker. You'll be leading some of the top U.S. corporations in the 1990s, a decade with every likelihood of turbulence. Who you are, where you come from, and what you're like as an executive is too important to ignore.

Taylor began with the kind of scut work that police detectives know only too well. He checked the ages of more than 200 CEOs of FORTUNE 500 industrial companies. Then he moved on to the even more daunting task of putting together a list of "suspects" who'll be filling these positions, talking to his colleagues at FORTUNE, security analysts, competitors, headhunters.

"The real fandango," says Taylor, "began when I tried to talk to the candidates. Initially most of the PR people tried to discourage any interviews." Like the determined detective he is, Taylor persevered. Gradually heirs began to speak to him.

Other articles in this issue also focus on the future. One by Gene Bylinsky is on Genentech (see page 52), the biotechnology pioneer getting rich off a drug that dissolves blood clots. In addition to his scientific reporting (which we think he does better than anybody else), Bylinsky recently had a close-to-home experience with the new drug: "A man down the street had a massive heart attack, was given the drug in the hospital, and was sitting up in bed the next day."

In the fast-paced new Britain (see page 114), European editor Rik Kirkland recently demonstrated the future to a colleague from New York by taking him to lunch at a London yuppie hangout called Jam's. By 2:30 the room was deserted. "See. They're all back at their desks," said Rik. "We Americans are the only ones left."

Marshall Loeb
MANAGING EDITOR

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THE NEW BATTLE OVER IMMIGRATION

America needs skills. So should it admit people from abroad because they have these skills—or because they have relatives who are U.S. citizens?

■ *by Scott McConnell*

CONSIDER HOW AMERICA might look in the year 2000 unless it admits more immigrants: The labor force is aging and shrinking—a legacy of the baby-boom generation, whose panda-like reproductive patterns put birthrates below replacement level in 1972 and kept them there. Shortages of skilled labor, already noticeable in the 1980s in such fields as nursing and engineering, become acute. While the domestic market shrinks, America's international allies, economic rivals, and political adversaries watch the U.S. slouching toward a future sketched by Ben Wattenberg, the Jeremiah of the birth dearth: "a society that keeps getting older and smaller, older and smaller."

That scenario won't play in real life. As the economy shrugs off market crashes and continues to grow, people the world over dream of ways to come to America to fill its jobs and enjoy its freedoms. Last year, when the State Department quietly announced that 10,000 visas would be made available to people from countries that had been cut out of the recent immigration stream, government experts expected 100,000 applicants. They received 1.5 million. Today at least two million people, all qualified for immigration, await visas for entry.

America, a nation of immigrants, is once again engaged in a battle of whom and whom not to let in. Always an emotional issue, the immigration debate this time plays off the human drama of family ties against the critical need for skilled workers. The outcome will determine no less than the health of the economy as well as the future composition and character of the country.

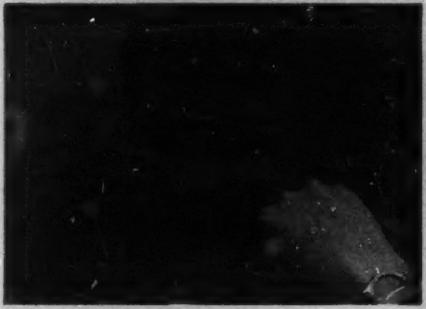
A tacit bargain exists between American capitalism and the restless and ambitious people who, whatever their birthplace or talents, reach the country's shores: In exchange for labor, and painful efforts at assimilation, come a higher standard of living and upward mobility, if not always for themselves then at least for their children. But the terms of that historic bargain are being gradually transformed.

continued

Rallying round the flag, *new Americans celebrate after a naturalization ceremony in Brooklyn. Some 280,000 immigrants become citizens a year.*

LYNN JOHNSON—BLACK STAR

After 24 years without papers, *Mexican Carlos Romero-Gaitan, 101, is the oldest person to apply for legal status under the amnesty program.*



From the Far Corners of the World and Near

Europeans can't come to the U.S. so easily anymore. Hans L. Hammarquist, above, from Sweden found the sweetest way: He fell in love with an American woman and married her. Though immigration's door is open widest to those with family ties, the people here have found a variety of ways to come in.

Little Linda Thu Hoang Do *may know Vietnam only as the land of her father's pain.*

PHOTOGRAPHS BY LYNN JOHNSON—BLACK STAR

From France: *a Bell Labs engineer*

From India: *an MIT grad who stayed*

From Guatemala: *She seeks asylum.*

From Iran: *He received asylum.*

Once a maw that could take in all, even those with little education and less English, the economy now demands skills. By the end of the century the U.S. will add some 21 million new jobs. Almost all will require a high level of literacy and at least some specific training—in many cases quite a lot of it. Though native-born Americans will take many of the new openings, assuming they can overcome dismal public school preparation, they will be in short supply. The Hudson Institute's study *Workforce 2000* figures that an astounding 22% of the jobs appearing in the next 12 years will go to new arrivals.

That may be wishful thinking. Current immigration policy gives little weight to education or job skills. The single most important criterion for establishing immigrant status: family ties. The "family reunification" goal of existing policy means preferential treatment not only for the immediate family of naturalized citizens—spouses, parents, and minor children—but for the extended family as well. In a phenomenon called "chain immigration," an in-law can bring in a brother, who can sponsor another in-law, and so on, expanding the number of families eligible for reunification indefinitely. Of the 500,000 nonrefugee immigrants to the U.S. in 1986, about 470,000 had family sponsors.

Admissions of refugees, those special cases whom the President and Congress agree to let in on humanitarian grounds, have averaged 65,000 a year since 1983. From 1980 to 1982 the dramatic exodus of Vietnamese allowed the U.S. to bring in several times that figure. About 20,000 would-be citizens enter the U.S. and simply claim asylum each year, but only about a quarter of them are eventually permitted to become resident aliens. The largest stream of immigrants outside the family-preference categories are those who had the foresight to enter the U.S. illegally before 1982. By the time the amnesty program is finished, an estimated two million illegal aliens will be eligible for citizenship and thus able to bring in their extended families.

IN DECIDING who will be allowed to immigrate, the possession of job skills, or entrepreneurial ability, or capital to invest, counts for practically nothing. Only 27,000 visas a year go to professionals and their families. Skilled and unskilled workers whose employers endure the complicated process to sponsor them account for another 27,000.

After years of wrangling over illegal immigration, Congress is now debating the system of legal immigration. The key question is whether immigration policy should move away from family reunification and toward the selection of immigrants on the basis of their likely economic contribution. A bill that inches in that direction, jointly sponsored by Senator Edward Kennedy (D-Massachusetts) and Alan Simpson (R-Wyoming), rolled easily through the Senate in March. Similar legislation, which calls for an annual ceiling of 670,000 immigrants, vs. 590,000 in the Kennedy-Simpson bill, has been introduced by Representative Charles Schumer (D-New York) and is pending before the House judiciary committee. Both Senate and House bills open a small channel for "independent" immigrants. A point system, which takes into account education, English-language skills, work experience, and occupational demand, would be used to allocate 55,000 of these visas annually. Another 5,000 visas would go to investors who can each put $2 million into a business that creates ten full-time jobs. Both bills wisely cut back some of the advantages given to the cousins and in-laws of present citizens.

SMOOTH SENATE PASSAGE does not promise an easy road in the House, where various immigration lobbies may stall reform. Heading a group that wants sharp reductions in the numbers of immigrants is the Federation for American Immigration Reform (FAIR), a coalition supported by environmentalists and such population controllers as former Colorado Governor Richard Lamm, some liberals who worry about the competitive impact of low-wage immigrants on blacks and other disadvantaged Americans, and people who feel uneasy about the influx of large numbers of foreigners. On the other side is the National Immigration, Refugee, and Citizenship Forum, which favors increased immigration. Forum is an umbrella organization for labor unions, churches, refugee assistance organizations, and Hispanic and other ethnic groups. Though the lobby uses the declining birthrate and looming labor shortages to support its views, it remains tightly wedded to the family reunification criteria. Families, says Forum's director, Rick Swartz, "serve as cushions" for immigrants, helping them become comfortable in the new culture.

The National Council of La Raza ("the race"), a Mexican-American group with allies in the House Hispanic caucus, also supports family reunification. "It provides a network of persons already here who help the accul-

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REPORTER ASSOCIATE *William E. Sheeline*

Where most U.S. immigrants came from

	1905		1925		1965		1986	
1	Austria-Hungary	275,693	United Kingdom*	53,822	Canada	38,327	Mexico	66,753
2	Italy	221,479	Germany	46,068	Mexico	37,969	Philippines	61,492
3	Russian empire	184,897	Mexico	32,964	United Kingdom	27,358	Korea	35,164
4	United Kingdom*	64,709	Scandinavia	16,810	Germany	24,045	China	32,389
5	German empire	40,574	Italy	6,203	Cuba	19,760	Dominican Republic	30,787
6	Sweden	26,591	France	3,906	Colombia	10,885	Haiti	26,216
7	Norway	25,064	Czechoslovakia	2,462	Italy	10,821	India	24,808
8	Japan	10,331	Switzerland	2,000	Dominican Republic	9,504	Jamaica	18,916
9	France	10,168	China	1,937	Poland	8,465	United Kingdom	16,129
10	Portugal	5,028	U.S.S.R.	1,775	Argentina	6,124	Canada	16,060
Total immigration: 1,026,499				**294,314**		**296,697**		**601,708**

▨ Europe ▨ Latin America, Mexico, Caribbean ▨ Asia ▨ Canada

*Includes Ireland.

SOURCE: U.S. IMMIGRATION AND NATURALIZATION SERVICE

turation process," says La Raza's director of policy analysis, Charles Kamasaki. While not opposed in principle to a special category for independent immigrants, as put forth in the House and Senate bills, Kamasaki worries that skills-based immigration would eventually cut into the visas now reserved for family reunification.

In spite of the subject's importance, business has mainly stayed out of the debate. While such groups as FAIR and La Raza can generate piles of letters to Congress, the only persistent business voice on the Hill belongs to the fruit and vegetable growers, who want to ensure their access to a work force of low-paid aliens, legal or otherwise. The U.S. Chamber of Commerce has testified in Congress in support of the limited but valid issue of increasing quotas for the foreign employees of U.S. corporations.

Roughly nine million immigrants will come to the United States during the 1980s, twice the number that came in the 1970s and many more than have entered in any similar period since World War I. But it is not an unprecedented flow, relatively speaking. From 1900 to 1930, the foreign-born made up more than 12% of a (much smaller) U.S. population, twice the percentage today.

Most of the immigrants, about 84%, are from Asia, Latin America, and the Caribbean (see table). While this reflects the great desire by people in those areas to come to the U.S., the composition is also the consequence of the Immigration Act of 1965. This law repudiated the national origins quotas that had governed immigration for most of the century. The old system generally ensured that those who were allowed to enter would not alter the country's ethnic balance. Thus, it effectively kept out Asians and shut the door to most of Eastern Europe's hunted Jews during the Nazi era. The new law, passed in the spirit of the 1960s, treated all nations the same—Ireland and Italy like Pakistan and Ethiopia.

Replacing the country quotas was a preference system, which favored family ties, not talent or skills. The system allows the entry of immediate family members without limit. It also allocates 270,000 visas worldwide to preference categories: other relatives, professionals, and company-sponsored workers. Of those precious visas, fully 90% go to family members. No country gets more than 20,000 of the preference visas in one year. In the event more than 20,000 petitioners are eligible for visas, their applications are held over to the next year, with priority over later applicants.

No one expected the 1965 act to radically change the traditional European patterns of immigration. After all, who had family members here? Attorney General Robert Kennedy told the Senate that 5,000 Asian immigrants might come the first year, "after which immigration from that source would virtually disappear." The bill's white ethnic supporters in Congress expected that Italian- and Greek-Americans would have leeway to bring their relatives. At first they were right. Of the 3.3 million immigrants who came during the 1960s, Italy, Germany, Britain, and Canada trailed behind only Cuba and Mexico as sources of new immigrants.

But the stream changed quickly. Though Asians, Mexicans, and other Latin Americans had few family connections, they filled the smaller quotas for employer-sponsored workers and professionals. Europeans did not. In booming Western Europe people didn't want to leave; in East Bloc countries they couldn't. The first Asians were physicians, engi-

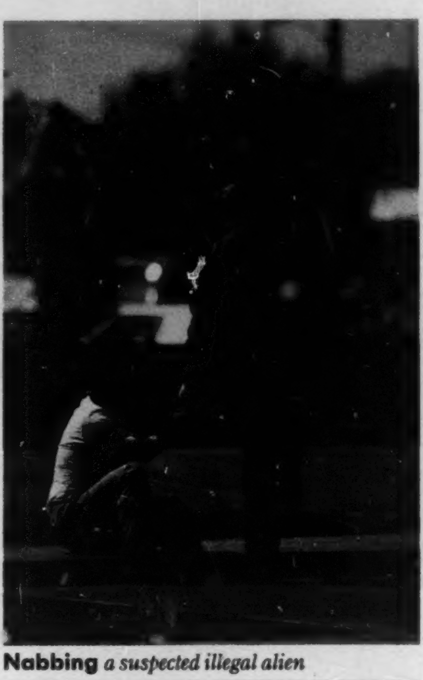
Hong Kong? *No, this supermarket is in suburban Los Angeles.*

neers, nurses, the occasional war bride from Korea and Vietnam. By the late 1960s European scientists and engineers, who had usually been able to enter and bring their families at will, began to find their professional counterparts from India, Korea, and Taiwan ahead of them in the line for the 27,000 professional visas. These first Asians used the family-preference system to its full potential.

What no legislator voting on the 1965 act envisioned was how quickly family reunification would produce chain immigration. Imagine one immigrant, say an engineering student, who was studying in the U.S. during the 1960s. If he found a job after graduation, he could get labor certification and become a legal resident alien. He could then bring over his wife, and six years later, after being naturalized, his brothers and sisters. They, in turn, could bring their wives, husbands, and children. Within a dozen years, one immigrant entering as a skilled worker could easily generate 25 visas for in-laws, nieces, and nephews.

CHAIN IMMIGRATION made families happy, but it brought other difficulties. Several countries—the Philippines, Mexico, Korea, the Dominican Republic—quickly filled their quotas, creating long waiting lists. This backlog completely closed the door to those would-be immigrants who had no close relatives to sponsor them. In effect, countries that hadn't quickly established a beachhead of immigrants after the 1965 law were kept out of the system.

This problem was responsible for the last-minute amendment to the 1986 Immigration Reform and Control Act that provided for a one-time only issuance of 10,000 visas for 36 countries whose immigration had been "adversely affected" by the 1965 bill. One of these countries was Ireland, ancestral home of Brian Donnelly, the Boston Congressman who proposed the amendment. Others were Poland and Hungary, where potential immigrants were finding it easier to leave. Tens of thousands of applications came from Indonesia and Japan. Seven thousand Rumanians, whose country was not included in the program, made inquiries at the U.S. embassy. In Burma, which also was not included, 5,000 showed up at the American embassy. The huge response to the Donnelly amendment—150 applications were filed for every available visa—was a stunning demonstration of the pent-up desire for American citizenship around the world.



Nabbing *a suspected illegal alien*

Countries were not really hurt by the 1965 law, but individuals were. A brother-in-law of someone who had immigrated ten years before could come in, no matter what his talents or lack of them. A person with ambition and skills was blocked.

Traditionally immigrants to the U.S. have done well not only because the economy needed them, but also because the decision to immigrate itself tends to rule out the passive and complacent. As Rick Swartz of the National Immigration Forum puts it: "Immigrants tend to be the stronger willed, the more sophisticated, the more adventuresome." Their children have done well too. Economist Barry Chiswick of the University of Illinois figures that for most of this century the children of immigrants have earned 5% to 10% more than native-born children with the same level of education.

Most research shows that, so far, the economy has been helped by the recent wave of immigration. Studies by both the Rand Corp. and the Urban Institute conclude that new immigration has particularly stimulated the economy of California, the home of nearly 30% of recent immigrants.

The main point of the Urban Institute's *The Fourth Wave* is that an influx of immigrants during the 1970s did not create higher unemployment for the native born. Author Thomas Muller found that recent arrivals took two of three newly created jobs in Los Angeles County, one out of three in Southern California. But the immigrants did not upset employment rates. In fact, California unemployment rates, higher than the national average in 1970, fell below the mean in the early 1980s.

Many immigrants found basic manufacturing jobs in Southern California, which became a large-scale maker of clothes and furniture. Muller notes that the backbone of this work force is low-paid, often illegal labor, and that these factory jobs simply would not exist without immigrants to take them. The white-collar managers of such firms benefit, as do the workers who produce raw materials for such companies.

Muller stresses that the new wave of immigrants worked well economically because of its sociological diversity. The large numbers of laborers from Mexico were balanced by a parallel stream from Asia of quite skilled immigrants—37% had some college education or better. The only economic losers from immigration were workers at the bottom of the occupational ladder, whose growing numbers forced wage growth to slow.

The problem of social assimilation may well be more emotionally charged for Americans, both immigrants and natives, than economic issues. In such Los Angeles suburbs as Monterey Park, older white residents battle thriving Chinese immigrants about zoning regulations, a contest rooted in cultural tension over "unreadable" Asian-language signs in the malls and other symbols of the changing of a neighborhood. But these confrontations have been polite and bloodless, mild by the traditional standards of American ethnic politics, softened by the shared middle-class mores of the participants. If future tensions between natives and immigrants take on the added edge of class conflict, the battles may be less polite.

FOR MEXICAN IMMIGRANTS, assimilation and economic advancement have been tightly linked. A Rand study by Kevin McCarthy and Burciaga Valdez concludes that Mexicans in California have been joining the American mainstream in the same three-generation process that generations of Poles, Russians, and Italians have traced.

When they arrive in California, Mexicans typically speak minimal English, have less than eighth-grade educations, and take low-skilled jobs. Their children tend to grow up bilingual, finish high school at rates close to the state average (though rarely go further), and find work in such semiskilled jobs as machinists and clerks. The third generation, Mexican-Americans with American-born parents, are more comfortable with English than Spanish, attend college or technical school at rates approaching those of other Californians, and have gained a solid foothold in the middle-class professions.

Yet future economic trends threaten this classic pattern. The Rand study expressed alarm at the coming shrinkage of the bridge jobs—the skilled craft or clerical jobs often taken by the sons and daughters of Mexican immigrants—which may retard the progress of the second generation. The Center for Continuing Study of the California Economy figures that from now until 1995, the state economy will be increasingly technological, but that Hispanics, Asians, and blacks will not be holding the higher-skilled jobs in proportion to their population.

Such trends make it questionable whether the children of today's unskilled immigrants will be able to assimilate as easily as past generations. The problem could well be aggravated by the amnesty program. It will lead to the naturalization of an estimated two million immigrants, mostly unskilled, within seven years—and by the subsequent admission of their relatives under family reunification. The largest class of new immigrants may find themselves shut out of the most dynamic sectors of the economy, and thus from the assimilation process, by their lack of skills and education.

THE VARIABLE that most closely predicts economic success for immigrants as for other Americans is education. But Barry Chiswick's recent research suggests that the present, kinship-driven immigration system is beginning to drive immigrant educational levels down.

The shift of immigration from Europe to Asia and Latin America does not fully explain the decline. In fact, the phenomenon is most pronounced within the stream of Asian immigrants. Those who entered in the years immediately after the 1965 Act were the best-educated immigrant group ever because they received almost all their visas under the occupational and skills preferences. It was their children who astonished the nation with their accomplishments in high school math and science competitions ten to 15 years later. Yet this flow of talent is now being diluted by the priority given to their in-laws and cousins; since 1970 the average educational level of Asian immigrants has dropped by about two years.

The U.S. passed the 1965 Immigration Act at a time when America's economic predominance seemed as if it might extend forever. The nation had soaring gains in productivity, declining energy costs, a continually growing GNP. Other countries barely challenged the U.S. in the global markets, much less its own. Foreign control over American industry and real estate were difficult to imagine.

ROBIN MOYER

Visa applicants *patiently wait outside the U.S. embassy in Manila.*

Now, with the trade and budget deficits lurking in the background, a different vocabulary is gradually slipping into the discussion of the new bills. The letter introducing the Kennedy-Simpson immigration proposal quietly suggests that legislation would bring immigration policy "more in line with the national interest." Charles Schumer describes his bill as a way to help "competitiveness." Where immigration is concerned Congressmen raise such ideas cautiously, fearful of exposing themselves to the charge of being antifamily or worse.

A few guidelines should help the current debate. First, the U.S. needs immigrants as much as immigrants need the U.S. Current levels of legal immigration can be absorbed easily and can probably be increased. Second, the economy requires people with labor market skills and ability in math and the sciences. Third, the U.S. does not have a growing need for unskilled labor.

Current immigration policy seems designed to encourage the unskilled, deny the skilled. The amnesty provision in the 1986 Immigration Act can be defended on humanitarian grounds as protection of a vulnerable class of unskilled workers. But its eventual effect, when those future citizens start to unify their families, will be to confer citizenship on many millions of unskilled people. As long as present law remains in effect, those applicants will have priority over those whose only card is education, or needed job skills. When thousands of skilled nurses, who came in on temporary work permits, now face deportation in the midst of a looming national health care crisis, the family-first criteria seems truly perverse.

As a beginning to immigration reform, kinship immigration should be limited to immediate family members—spouses, minor children, parents. Second, the largest class of immigrants should be admitted on the basis of their education and of labor market needs. Most visas should be allocated by a point system, subject to regular congressional review and adjustment. Skills, education, and relative youth should count. A few points could be awarded for English-language skills, but most people, particularly in the professions, learn English rapidly enough. Family ties to American citizens might remain as a criterion, but only one among several.

Some effort should be made to ensure diversity, possibly by quotas based on the total population of each country. Greater variety in the immigrant stream would be likely to increase public and political support for more immigration. Finally, the quotas for refugees should be raised; no group of Americans teaches us more about the blessings of freedom.

If immigration reform is passed, Americans will discover a raging international competition for immigrants who can make a distinct economic contribution. Canada and Australia have had point systems for two decades and are happy with the results. While the U.S. has not issued a visa to an investor since 1978, Canada now welcomes immigrants with capital to invest and entrepreneurial skills. Immigration lawyer Daryl Buffenstein tells of listening recently to Canada's minister of state for immigration, Gerry Weiner, give a speech about the great benefits Canada was reaping from its new influx of entrepreneurial immigrants. Returning to his seat, Weiner leaned over and whispered to Buffenstein: "Just one favor—keep the American system exactly like it is." F argues that the ESOP "will tend to institutionalize the firm" by spreading ownership around. Perhaps more important, Getz says, it should be a motivator: "There is the prospect that something like this will happen again if it's a successful experience." In other words, new employee shareholders might eventually get to sell to the ESOP at a substantial multiple of book value.

The ESOP may smooth the ownership transition but does nothing for management succession. Reynolds is considered so much the dominant personality in the firm that observers are hard-pressed to name a suitable successor. Similarly with Egon Zehnder; though the firm is a partnership that elects its chairman every three years, it has elected the man whose name is on the door every time in its 24-year history. Korn/Ferry is organized in a pyramid, like a corporation, and may find that management succession runs smoothly. Competitors seem to agree with Richard Ferry that "we have a senior officer cadre that's pretty interesting." Financial services chief Windle Priem is often mentioned as a particularly strong manager.

The headhunters still face plenty of possibilities for trouble. Globalizing can eat ferociously into profits, and past attempts to diversify—like Boyden's—have sometimes bombed. But the American and world economies continue to expand, and no one seems to doubt that business is becoming more competitive. That translates into increasing demand for talent. Firms that can find it are almost certainly in a growth industry. ■

HOW THE TOP RECRUITERS REALLY RANK

■ How big are the major executive recruiters? Until now, no one has known for sure. All are either private or buried within larger public companies, so they report revenues any way they like and without independent verification. Those figures have sometimes been suspect, since the headhunters want to appear as large as possible.

To dispel the myths, FORTUNE commissioned Arthur Young & Co. to conduct a survey. More than two dozen firms identified as the largest by *Executive Recruiter News* were invited to participate; 14 made our cutoff of $4 million in U.S. recruiting fees last year and instructed their outside auditors to provide data to Alan L. Miller, an audit manager at Arthur Young. He verified the numbers and ensured they were comparably calculated. The result is the first authoritative list of recruiting firms' sizes.

Differences from previous lists are sometimes dramatic. Firms present data that are often inconsistent for a number of reasons. These include:

▶ Fiscal year differences. With many companies growing 15% to 30% a year, the difference between fiscal year-ends of April 30 (such as Korn/Ferry's) and September 30 (such as SpencerStuart's) can be significant. We required each firm to provide data for calendar 1987.

▶ Timing of currency translations. The dollar's plunge in 1987 makes this a critical factor for companies with large overseas earnings. We required each firm to use weighted average exchange rates.

▶ Treatment of nonrecruiting revenues. Some firms bring in large amounts from mergers, consulting, or other sources. We counted only recruiting fees.

▶ Treatment of reimbursable expenses. Most recruiters think such expenses should not be counted as revenue. Korn/Ferry has always included them, giving competitors a chance to snipe at its No. 1 rank. President Richard Ferry was a strong proponent of the FORTUNE analysis, which excludes these expenses, though it had the predictable result of narrowing his firm's lead.

▶ Treatment of revenues from foreign affiliates. We have counted all the revenues of foreign affiliates as long as they refer business exclusively to each other, have formalized arrangements for fee splitting, and meet frequently, even if they operate under separate names and share no ownership. Reason: However they choose to be owned or named, they operate as a single competitive unit.

▶ Just plain lying. "I'm *so* glad that you're doing this," said a co-founder of a successful firm just too small to make this list. "At my old firm, when the press called, the president would double our revenues to give them a figure." The firm in question is on the chart—with the real numbers. —H.S.F.

The Biggest U.S.-Based Headhunters

List includes all American firms with at least $4 million of U.S. revenues except New York's Richards Consultants, which did not provide data to FORTUNE's specifications but is probably in the list's lower half.

COMPANY	1987 RECRUITING FEES			
	WORLDWIDE[1]		U.S.	
	in millions	rank	in millions	rank
Korn/Ferry International[2]	$68.4	1	$45.2	1
Russell Reynolds Associates	$67.7	2	$41.0	2
SpencerStuart	$56.0	3	$26.2	4
Heidrick & Struggles[3]	$38.9	4	$27.8	3
Ward Howell International[4]	$35.4	5	$12.0	6
Boyden International[5]	$26.8	6	$13.1	5
Peat Marwick Main & Co.	$18.2[6]	7	$7.4	9
Paul R. Ray & Co.	$12.5	8	$11.8	7
Nordeman Grimm	N.A.[7]	9	$9.6	8
Handy Associates	$7.1	10	$7.1	10
Lamalie Associates	$6.4	11	$6.4	11
Kearney Executive Search	$5.2	12	$4.1	14
Witt Associates	$4.9	13	$4.9	12
Higdon Joys & Mingle	$4.4	14	$4.4	13

[1] Includes U.S. [2] K/F owns part of its Mexican offices, but 100% of all others. [3] H&S owns 49% of its overseas offices. [4] Foreign offices are locally owned. [5] Assets in all countries are locally owned. [6] Reflects worldwide results for fiscal year ended 6/30/87; U.S. figures are for calendar 1987. [7] Not available.

■ STEVE JOBS' NEXT CHALLENGE FOREIGN INVESTORS INVADE THE U.S. ■

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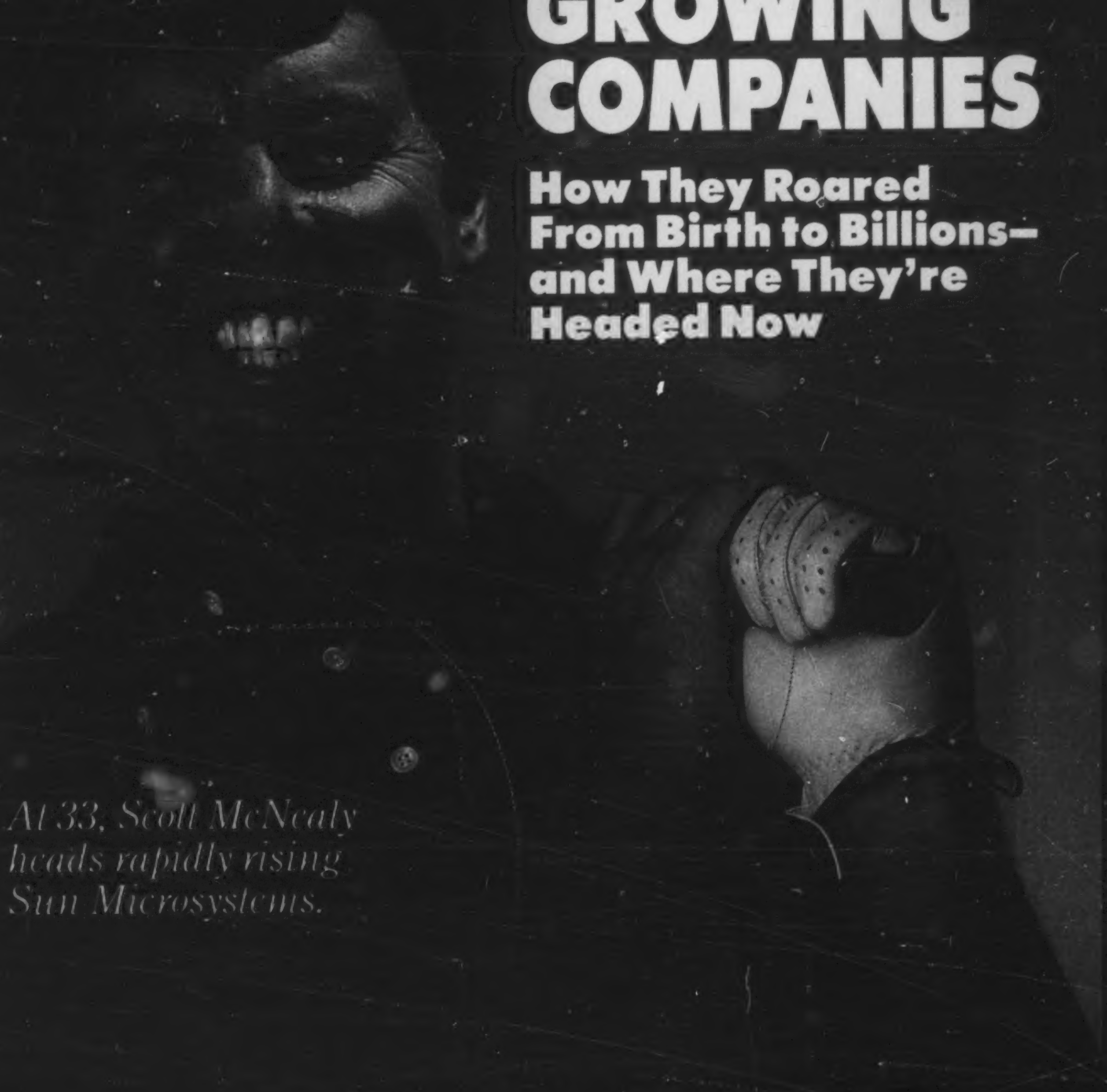
FORTUNE

AMERICA'S FASTEST GROWING COMPANIES

How They Roared From Birth to Billions—and Where They're Headed Now



At 33, Scott McNealy heads rapidly rising Sun Microsystems.

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"There will always be two or three companies that will have a major share of any market. If you don't grow, you'll die."

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"We're peddling our country like soap powder."

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"Here is a 33-year-old with 50 years' worth of business experience."

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"I wouldn't just walk into the White House and say: 'Make my day.' "

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"It's simple. Professors produce research or are fired."

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"He called me up and yelled and screamed. And I said, 'Aw, shut up.' "

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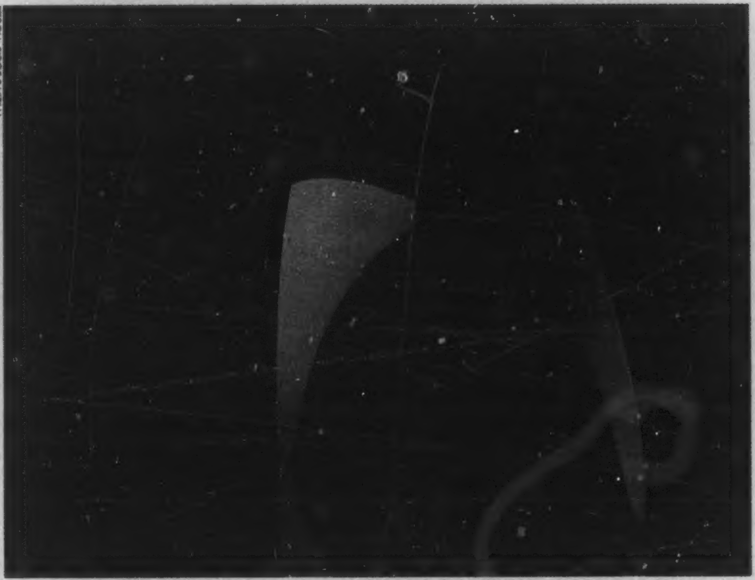
PHILIPPE-LOUIS HOUZE

Alexander Calder's Elephant *is the trophy given with the National Magazine Award.*

FORTUNE
THE MOST SUCCESSFUL CAPITALIST IN HISTORY

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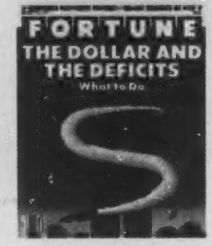

WE AT FORTUNE like to think that we share a community with our readers, and that you enjoy hearing when something extraordinarily good happens to us. Well, something has. FORTUNE has just won the magazine world's equivalent of the Oscar and the Pulitzer: the 1988 National Magazine Award for General Excellence. We placed first among all magazines with a circulation of 400,000 to one million. The awards are sponsored by the American Society of Magazine Editors and administered by Columbia University's Graduate School of Journalism.

The judges based their decision on three typical issues, whose covers are at left: The Most Successful Capitalist in History (August 31), The Billionaires (October 12), and The Dollar and the Deficits (December 7). In their citation, the judges—all eminent editors and journalism educators—wrote: "FORTUNE has evolved from a solid business publication into a lively, entertaining magazine without any loss of sophistication or authority. Its big packages are well-researched and well-executed. Its design is strong and imaginative. It is a complete magazine—full of substance and ideas, with first-class art work, writing, and reporting." After the awards announcement, one judge remarked: "It's hard to see how a magazine could be any better." We respectfully disagree. We pledge to make FORTUNE better and better and better.

Marshall Loeb
MANAGING EDITOR

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AMERICA'S FASTEST-GROWING COMPANIES

They have roared from birth to billions by grabbing hold of major trends and somehow hanging on. Now they must take new risks to keep the growth going.

■ *by Stuart Gannes*

CALL THEM the billion-dollar kids. They are the fastest-growing companies in America's fastest-growing markets. Innovative, opportunistic, above all entrepreneurial, they are romping through the ranks of the FORTUNE 500 like grade-schoolers at a Saturday afternoon picnic. The speed of their ascent is mind-boggling. At the beginning of the decade most members of this Shirley Temple set were mere startups, and a few didn't exist. Suddenly in American business, a childhood fantasy is coming true: You don't have to wait to grow big.

You do have to accomplish quite a few other things that most companies never achieve. In general, the supergrowth champs begin their rise by tapping into broad nationwide or worldwide trends, such as the spread of the personal computer or the female invasion of the work force. They follow those trends—and their market implications—wherever they lead. Then they find ways to survive the turbulence and intense competitive pressures that follow. When the rocket lifts off, a lot of companies can't hang on.

JOYCE RAVID

Toys "R" Us chief Lazarus: "We're in the growth business. What we sell is toys."

As large corporations get rapidly larger, it's hard to imagine which is tougher—achieving the growth or withstanding it. Consider:

▶ Sun Microsystems of Mountain View, California, after five years in existence, saw sales of its computer workstations more than double last year to $538 million. They'll do $900 million in the fiscal year that ends in June.

▶ In the Boston suburb of Canton, athletic shoemaker Reebok International increased sales 50% to $1.4 billion. The company was in its eighth year.

▶ Compaq Computer in Houston, the youngest superstar of the personal computer boom, saw orders for its most popular model double in three weeks last year. Sales for all of 1987 soared 95% to $1.2 billion.

▶ New York's Liz Claiborne, founded in 1976, leads all competitors in selling fashions to working women professionals, the fastest-growing segment of the labor force. Sales rose 30% last year to $1.1 billion.

More than a score of other U.S. companies have achieved comparable growth in the past five years (see table). Many are retailers that are quickly able to implant a winning concept across the country. But the success stories encompass a wide range of industries and regions.

For many of these companies, being right has proved far more important than being first. You don't have to invent a product if you can figure out how the market will develop and position your company to take advantage of it. Consider how Compaq outdistanced its competition. When IBM unveiled its PC, Compaq was among dozens of startups that jumped into the market with compatible products. The young company became a master of what management writer Peter Drucker calls "creative imitation, or entrepreneurial judo." The advantage of the strategy, says Drucker, is that "by the time the creative imitator moves, the market has been established and the new venture has been accepted. Indeed, there is usually more demand for it than the original innovator can supply."

Compaq's founders quickly hit upon two key tactics to differentiate themselves from the crowd. One was their now famous portable computer, which was an instant hit. Sales of the luggable machines topped $111 million in 12 months. Less known but just as crucial was Compaq's decision to develop strong relationships with computer retailers, then a new and unproven part of the industry. From the start Compaq realized that the retailers were key and that store shelf space would became scarce real estate. Unlike many of its competitors, including Apple and IBM, Compaq never tried to compete with retailers by selling its machines directly to large customers. Compaq offered key dealers exclusive fran-

That's a Compaq factory behind the foliage. Sales last year rose 95%.

PHOTOGRAPH BY JAY BROUSSEAU

LARRY WILLIAMS—OUTLINE

Under CEO Rod Canion, Compaq made the FORTUNE 500 in record time—four years.

chises and attractive margins and won the distribution battle. Today one of every six personal computers sold by dealers is a Compaq. At 25%, its share of market revenues is second only to IBM's 30%.

Businessland, the fast-growing six-year-old computer retailer based in San Jose, California, was also a latecomer. Like dozens of other entrepreneurs, Businessland co-founder Dave Norman looked at the proliferation of personal computer products and concluded that customers would never be content to shop directly with just one manufacturer. They would want to pick and choose and would want unbiased advice. The insight was hardly unique and Norman knew he would have to offer something more. His answer was to create service-oriented stores geared to small business customers.

While that approach seems obvious now, it was not so clear at the dawn of the personal computer era, when the home market was thought to be king. Even Norman didn't fully understand that his concept was just as appealing to large companies as to small ones. This year, with some 70% of its business coming from FORTUNE 500 customers, Businessland expects revenues to approach $1 billion.

In the booming market for technical workstations, Sun Microsystems executed a brilliant strategy to seize the industry lead. Sun not only started late, in 1982, but it also faced a prosperous and entrenched competitor: Apollo Computer of Chelmsford, Massachusetts. Apollo pioneered workstations—desktop machines connected to a powerful central unit and to each other—and the company made no secret of its intention to dominate the business. Moreover, Sun's founders were well aware that workstation customers were leery of doing business with a startup. The solution: Design and build muscular but inexpensive computers that were compatible with the competition's products. That way a customer could fit Sun's computers into existing installations with virtually no risk.

BUT THE REAL SECRET to Sun's astonishing performance lay in its founders' ability to convert what appeared to be a glaring weakness into a strategic asset. The young company was so financially strapped that it could not afford to design the specialized electronic circuitry considered essential in building a high-performance workstation. Sun's founders realized that in the fast-paced computer industry, custom-built components were becoming obsolete in months. By using off-the-shelf parts, Sun could take advantage of technological breakthroughs as soon as they reached the market. The approach has enabled the company to double the computing speed of its workstations every year.

Sun is an example of what Raymond Miles, dean of the University of California business school at Berkeley, calls the "designer company," in which the presiding genius concentrates on key innovations and contracts out for all sorts of parts and services a more mature company would supply in-house. The designer approach worked for real-life designer Liz Claiborne. She and the three other founders of Liz Claiborne Inc. are all garment industry veterans. They spotted their opportunity in 1976. Says co-founder and vice chairman Jerry Chazen: "We knew we wanted to clothe women in the work force. We saw a niche where no pure player existed. What we didn't know was how many customers were out there." Clothes designers had not fully exploited one of the most profound demographic changes in the postwar era: Women baby-boomers were flooding the labor market.

Liz Claiborne's founders made two other instinctive decisions that stimulated the company's rapid growth. They decided not to build their own manufacturing plants or to field a traveling sales force. Both moves disregarded conventional industry wisdom, yet turned out to be pivotal. Lack of factories increased costs but gave the company more production flexibility than any competitor. The absence of a road force impelled the company to focus on winning orders from large department stores and specialty retailers, whose buyers were accustomed to traveling to New York. With practically no overhead, Liz Claiborne was perfectly positioned for rapid growth when sales took off.

Charles Lazarus saw the same social phenomenon, the working woman, but a different opportunity. He founded Toys "R" Us on the premise that "when Mama went back to work, department stores were dead." He reasoned that working women wanted a store where they could shop for their children quickly, easily, and cheaply. Unlike department stores, which count on the rapid turnover of a limited number of items, Toys "R" Us offers a warehouse full of playthings. Says Lazarus: "We don't want to decide which toys you should buy. We offer everything. And we make it easy for you to toss some crayons and coloring books into your cart." Toys "R" Us operates 350 stores, and sales last year topped $3.1 billion.

Reebok co-founder Paul Fireman experienced a different revelation. "There was a social change going on that nobody had noticed," he says. "We realized that the aerobics craze was for real and that there was a huge untapped market of women seeking both comfort and style. The industry was only focused on jogging shoes. It wasn't

REPORTER ASSOCIATE *Edward Prewitt*

growing with the customer." That realization brought Reebok 20 million customers that its competitors had overlooked. And what customers—instead of one set of sneakers, they often bought four or more colorful pairs of Reeboks. Sales jumped from $13 million in 1983 to $1.4 billion by the end of 1987.

A confluence of social forces turned Sol Price's warehouse club idea into a winner. By the late Seventies mass marketing had made consumers more selective; for many familiar items they didn't want advice, they just wanted a bargain. Then steep inflation made that desire urgent, and the California entrepreneur's Price Club took off.

Its strategy is brutally simple: Provide incredibly low prices, low enough to undersell not only other discounters like K mart and Wal-Mart, but even many wholesale distributors. At huge, no-frills, cash-and-carry warehouses, Price sells cases, cartons, and pallets of products. The aisles are wide enough for stock boys to replenish inventory with forklifts and for shoppers to load their purchases onto flatbed carts. Last year some two million individuals and small businesses paid $25 just for the privilege of shopping at a Price Club. Total sales: $3.3 billion.

SUPERGROWING companies almost inevitably face a challenge that threatens to drag them under: transforming themselves in a few months or years from exuberant startups to corporate giants that need procedures and structure to stay efficient. Unfettered entrepreneurialism was probably crucial to the early success, but channeling it in an organized way eventually becomes just as important. Otherwise, says Richard Cavanagh, dean of Harvard's Kennedy School of Government, these companies "essentially become day-care centers for adults. People Express is a good example. They had great esprit, but they never got it under control."

The opposing risk is that organization and control will crush the unique attributes that propelled the company. In the worst cases, writes Cavanagh in a book he coauthored, *The Winning Performance*, "Opportunities for breakdowns and malfunction multiply. Layers of organization can add drastically to response time. Functional specialization can lead to major problems of coordination and control: Is manufacturing really providing what sales is selling at the time it was promised? Systems may fail to monitor costs that get out of line. Leaders may lose their in-depth understanding of business dynamics or even their fundamental zeal. People throughout the company may lose their motivation and morale, adopting a nine-to-five mentality."

To avoid creeping bureaucracy, the founders of fast-growing companies try to push decision-making down to line managers. That's no problem for retailers like Toys "R" Us, Businessland, and Price, which regard each store as a business unto itself. Says Lazarus of Toys "R" Us: "No matter how big we get, the key unit in this company

25 OF AMERICA'S FASTEST-GROWING LARGE CORPORATIONS

COMPANY*	PRINCIPAL BUSINESS	1983 SALES in millions	1987 SALES in millions	GROWTH RATE (Average per year 1983-87)
Reebok International (Canton, Mass.)	Shoe wholesaling	$13	$1,389	155%
Sun Microsystems (Mountain View, Calif.)	Computer manufacturing	$9	$538	127%
Businessland (San Jose, Calif.)	Computer retailing and wholesaling	$10	$600	127%
Harvard Industries (Farmingdale, N.J.)	Diversified manufacturing	$27	$559	83%
Compaq Computer (Houston, Texas)	Computer manufacturing	$111	$1,224	62%
Seagate Technology (Scotts Valley, Calif.)	Computer accessory manufacturing	$110	$958	54%
Emerson Radio (North Bergen, N.J.)	Electronics wholesaling	$95	$811	54%
Home Depot (Atlanta, Ga.)	Building supply retailing	$256	$1,454	42%
Price Co. (San Diego, Calif.)	General merchandise retailing	$634	$3,323	39%
M.D.C. Holdings (Denver, Colo.)	Homebuilding	$155	$751	37%
Liz Claiborne (New York, N.Y.)	Clothing design and wholesaling	$229	$1,053	36%
Tele-Communications (Englewood, Colo.)	Operating cable TV systems	$347	$1,416	33%
Cray Research (Minneapolis, Minn.)	Computer manufacturing	$170	$687	32%
Wal-Mart Stores (Bentonville, Ark.)	General merchandise retailing	$4,667	$16,065	28%
Integrated Resources (New York, N.Y.)	Selling financial services	$322	$1,070	27%
Limited (Columbus, Ohio)	Clothing retailing and manufacturing	$1,086	$3,527	27%
Federal Express (Memphis, Tenn.)	Package delivery	$1,008	$3,178	26%
Circuit City Stores (Richmond, Va.)	Electronics and appliance retailing	$357	$1,011	23%
Apple Computer (Cupertino, Calif.)	Computer manufacturing	$983	$2,661	22%
Intergraph (Huntsville, Ala.)	Software manufacturing	$252	$641	21%
Telex Corp. (Tulsa, Okla.)	Electronics manufacturing	$325	$822	20%
Tandem Computers (Cupertino, Calif.)	Computer manufacturing	$418	$1,036	20%
Nordstrom (Seattle, Wash.)	Specialty retailing	$788	$1,920	20%
Toys "R" Us (Rochelle Park, N.J.)	Toy retailing	$1,320	$3,137	19%
MCI Communications (Washington, D.C.)	Telecommunications	$1,665	$3,939	19%

*List excludes spinoffs from established companies, and companies that have grown mainly through diversified acquisitions.

is the store. We want our store managers to take the business home in their stomach. We want them to think that their store is the only store in the world. We reward them with bonuses and stock options, and we've made a lot of millionaires."

REEBOK DEALT with its unwieldy size by creating five separate product divisions. The moves came just in time to avert chaos. When the company expanded to market eight different lines of shoes, most of its 2,200 employees had less than two years' experience at Reebok. They needed better supervision—and so did veterans of the freewheeling early days who never worried about anything except what the competition was up to. Co-founder Fireman recalls, "We had to teach our Roman legions how to operate in a time of peace."

Lack of organization nearly led to disaster in 1986, when Reebok jumped into the sportswear business. Practically overnight clothing sales reached $39 million. Says company president C. Joseph LaBonte: "The brand was so damn hot that anything we put on the racks just blew out of there. But we didn't know what we were doing. The product quality was not high. The good news was that our distribution was so bad that we didn't ruin ourselves. Most of the clothes never reached the shelves in time for the holiday sales. We eventually destroyed the rest." LaBonte, who was brought in to clean up the mess, slashed the size of the apparel group by 50%. "Now we are setting up an infrastructure so we don't have to panic all the time," he says.

How much structure does a growing giant need? The contrasting examples of Compaq and Sun make that question hard to answer. Most of the billion-dollar kids have navigated on the fly, imposing organization only when forced by circumstance. Compaq is the remarkable exception. If IBM is the Zeus of the personal computer industry, Compaq is the Pallas Athena, springing to life full-blown in a suit of armor. From the beginning, Compaq's founders—all Texas Instruments veterans—have tried to leave nothing to chance.

Even at the enterprise's birth, says senior vice president of finance John Gribi, Compaq was "a large company in its formative stages, not a small company trying to grow big. We had all our systems in place before day one. You have a clean slate, but you only get one shot at writing on it. Any startup has that advantage. It's just a question of whether you make good use of it. When our market took off, we were positioned to grow with it."

Market research, Reebok style: testing new designs on a Los Angeles street corner

PHIL SALTONSTALL—ONYX

Originally called Gateway Technology, the startup hired a San Francisco firm called NameLab to come up with a catchier name. Consultants also designed a corporate logo for all the company's products, literature, and advertising, with colors selected from an international color standard to ensure consistency each time a corporate trademark was printed. With sales running at an annual rate of $1.8 billion, Compaq still uses the accounting system it started with and has not fiddled with its management structure.

When Compaq executives talk about how they do things, one hears caution, earnestness, relentless rationality. "Once you announce a product, you're committed," says co-founder and chief executive Rod Canion, 43. "You don't want to make any mistakes, so it justifies putting the time and resources into making the best decision possible." Before giving the green light to a new product design, Compaq executives hammer out a consensus on everything from its design and manufacturing requirements to its price and marketing strategies. In the process, says Canion, "you always have disagreements. But at Compaq, instead of just arguing over who is right, we tear down positions to reasons. And when you get to reasons you find facts and assumptions. Then you try to eliminate the assumptions and come to agreement on the facts. Almost always, when you get your team to agree on the facts, you agree on the solutions." Canion says the approach depends on not having big egos. "In companies you usually hear slogans," he says. "From the very beginning at Compaq, what you heard was, 'Doing what makes sense.' "

Surely Compaq's alter ego is hard-charging Sun. Past policies exert no hold over its present. Though the company prospered by using off-the-shelf chips, last year it surprised the computer industry by commissioning its own microprocessor—the heart of all desktop computers. The gamble paid off almost immediately. Sun's new computers are a huge success, and competitors were so impressed with the new microprocessor that a number of them, including AT&T, Xerox, and Unisys, have decided to license it.

Sun co-founder and Chief Executive Scott McNealy is an admirer of Compaq, but he disdains the company's measured approach to decision-making. At Sun, he says, "We're more emotional. We get all fired up. Our adrenaline gets going and we start knocking against walls. Our new microprocessor's success was 90% assumption and 10% fact.

continued

FUN DAYS AT THE SUN FRAT HOUSE

JOHN PAVLOA—SAN JOSE MERCURY NEWS

A software engineer holes out on the par 4 in McNealy's office.

Last April Fool's Day, Scott McNealy, the 33-year-old founder and chief executive of Sun Microsystems, drove to work and found his office transformed into a miniature golf course. The night before, a band of engineer pranksters had torn out the wall behind McNealy's desk, removed the furniture, and covered the floor with fresh sod. The one-hole course they built was a tricky par 4. From an elevated tee, the fairway took a wicked dogleg to the right. Extra hazards included two sand traps and a birdbath, not to mention the glass picture window. Total distance: 12 yards.

McNealy was so flabbergasted that he bogeyed the hole. "I went into the trap, and it took me two shots to reach the green," he explains.

Such outrageous stunts are not only tolerated by Sun's exuberant leader, they are savored. In fact, with his buckteeth and boyish looks, McNealy seems more like the head of a college fraternity than the chief of a FORTUNE 500 company. And freewheeling Sun, nestled in the heart of Silicon Valley, does nothing to dispel the image. In addition to its tradition of yearly April Fool's shenanigans, the company stages weekly dress-down days and throws monthly beer bashes. On Halloween, employees show up for work in gorilla suits. Says McNealy: "We're trying hard to be different from other companies. One of our goals is to provide an environment that people have a blast working in. We like to think of Sun as a billion-dollar startup."

Fair enough. At the age of six, Sun can hardly be called mature. Nor can McNealy, who came to Sun just two years out of business school. But the young chairman's personality is a perfect match for Sun's wide-open culture. Under McNealy's leadership, Sun raced ahead of its competitors to become the leading manufacturer of high-performance technical workstations—the current rage among engineers, scientists, and financial analysts, who crave the extra horsepower these desktop computers offer. For Sun's fiscal 1987, which ended last June, revenues increased 156% to $538 million. And sales in its most recent quarter set a $1-billion-per-year pace.

Sun's growth astonishes McNealy as much as anyone else. Raised in Detroit, he is the son of an American Motors vice chairman. McNealy studied economics at Harvard and earned a business degree at Stanford in 1980. One of only three members of his class who sought manufacturing jobs, he joined FMC in Chicago. Within ten months he quit to work for Onyx Systems, a Silicon Valley computer maker. "FMC put me on a strategy team, and I wanted to be a plant manager. I wanted to make something," he recalls. McNealy left Onyx in early 1982 when a business school buddy, the brilliant India-born Vinod Khosla, asked him to help start Sun. Khosla was Sun's first chief executive. McNealy was head of manufacturing. "That meant I built the first 25 Suns by hand," he recalls, "and I had the skinned knuckles to show for it."

McNealy was named Sun's interim president in 1984; the man the company's board of directors had recruited for the job, a veteran executive from Digital Equipment Corp., never fit in with Sun's rambunctious troops, and resigned. A few months later the 30-year-old Khosla decided to retire, and McNealy was appointed interim chairman as well. "At some point, I guess I became more than interim," he says.

WITH 6,500 EMPLOYEES, Sun is no longer a mere startup, and McNealy is growing with his job. Over the past year he has proved himself a tough and forceful executive as he hammered out major deals with such industry giants as AT&T, Xerox, and Unisys. Yet McNealy still relishes his role as Sun's most enthusiastic cheerleader. "I'm not a strategizer at heart," he says. "I'm more focused on cohesion and pulling everybody together. Goals only limit you. We let the market and our ability to have fun set the company's goals."

McNealy's business heroes come from the computer and car industries. They include Kenneth Olsen, founder and chief executive of Digital Equipment, as well as William Hewlett and David Packard, the pair of billionaires who inspired thousands of Silicon Valley entrepreneurs by starting their company with $538 in a garage. "These are guys who stuck with their strategies for a long, long time, all the while protecting the cultures of their corporations," says McNealy. He reserves a special affection for Henry Ford. "By bringing automobiles down the cost curve, Ford really changed the way we live our lives," he says. "The same thing is going to happen with computers."

Still a bachelor, McNealy plays hockey at an indoor rink in San Jose and golf on any course he can find. "My real dream is to play enough golf to make it to the Masters," he jokes. Give his engineers the word and they just might decide to stage that hoax, come next April.

DOUG MENUEZ—PICTURE GROUP

Businessland co-founder Dave Norman flies anywhere to help a salesman close a deal.

It was an emotionally charged issue. How much courage do we have vs. what do the facts say? Facts are available to everybody else, but intuition is proprietary." At times Sun seems incapable of backing away from an opportunity, no matter how risky. In just the past year the company has committed itself to major development projects at the top and bottom of its product line. First the company introduced a high-performance "supercomputing" workstation, and then it unveiled a high-powered personal computer that will compete with Compaq models.

SOMETIMES SUN even tries to recreate that little-company feeling. When the initiative of the startup days began to slacken, McNealy would break up the growing mass of employees. Last year, for example, after a key development project got bogged down, he ordered a team of engineers to clear out of headquarters and finish the job off site. The project got back on schedule. Another division, formed to design a new line of low-cost computers, was set up on the East Coast. Says McNealy: "You have to fire-wall product development groups and give them enough autonomy to do their jobs."

Aware that their progress is exceptional, the founders of fast-growing companies are obsessed with keeping it going. They fret about losing their entrepreneurial magic, losing touch with their markets, or not being able to hire ambitious go-getters like themselves. Most act like owners of small businesses rather than managers of large public corporations. At Businessland, for example, Norman still makes frequent sales calls. "I let all our store managers know I'm available if they need me," he says. Toys "R" Us's Lazarus frequently monitors sales statistics for individual stores on computer screens installed in his office, his home, and his beach house. "I don't ask people how they are doing, I look at the tube. I can see all kinds of things. I look for items not sold. Nine times out of ten it means they are not stocked on the shelves," he explains.

Even the slightest stumble provokes endless agitation and self-doubt. When Liz Claiborne laid an egg with high hemline dresses last fall, Chazen put the blame on himself. "I should have known better," he says. "We didn't recognize conflicting social phenomena. The working woman wants to be stylish, but she also wants to be dignified. It was the biggest boo-boo that I know of in my 35 years in the business." In Compaq's business, new models replace old ones about every nine months. As Canion says, "Your last successful product doesn't mean olive oil. One success is gone almost before it even happened. We never even consider slacking off. You've got to keep running."

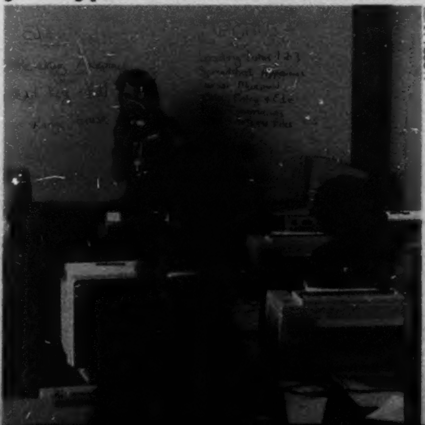
Why the obsession with momentum? Most of the billion-dollar kids are in fast-growing industries where eventual shakeouts seem inevitable. Says Businessland's Norman: "There will always be two or three companies that will have a major share of any market. If you don't grow, you'll die." Adds Sun's McNealy: "There are only going to be a few major computer companies. A billion dollars in sales isn't big enough. We have to get bigger."

ANOTHER REASON to keep up the growth is that Wall Street loves it. Security analysts are infatuated with the supergrowing companies. Smith Barney's Ilene Goldman rates Sun a top pick because "the company will outpace the industry's growth rate," which she figures at 25% per year. Salomon Brothers' Jack Seibald thinks Price Co. will also grow at a 25% rate. Montgomery Securities and Drexel Burnham are bullish on Reebok. Analysts at Prudential-Bache Securities issued "aggressive purchase" or "accumulate" recommendations in April for Sun, Toys "R" Us, and Businessland. First Boston's Charlie Wolf says that Businessland's stock "is significantly undervalued." Morgan Stanley pushes Compaq. When the growth stops, often the rave reviews do too.

There's apparently another reason to press the chase for supergrowth: It just feels good. Is growth a narcotic? "My wife asked me that same question," says Toys "R" Us President Norman Ricken, who pauses, then blurts, "The market is just out there and it belongs to us." His boss, Charles Lazarus, looks at a map of the U.S. studded with bright red pushpins for each Toys "R" Us location, then adds, "Growth creates problems, yes, but it also eliminates them. The only thing I know how to manage is growth. We're in the growth business. What we sell is toys."

The parents of the other billion-dollar kids

Computer classes and other services are a growing part of Businessland's revenues.



JOHN ABBOTT

could make similar statements, for down deep they all seem to be empire builders. They have developed compelling visions of the future of their industries, and they aim to exploit their leadership positions. Nearly all are convinced that their markets are still largely untapped. Retail chains like Businessland, Toys "R" Us, and Price Club can open stores in new locations. As Compaq and Sun computers get more powerful and easy to use, they become more attractive to larger groups of customers. The hotter the Reebok and Liz Claiborne brand names become, the more kinds of products they can sell.

The supergrowing companies have several other strategies for maintaining their pace. Many are expanding overseas. More than 35% of Sun's revenues already come from exports. Compaq makes its personal computers in Scotland as well as in Houston. Reebok shoes and Liz Claiborne dresses are best sellers in Tokyo. By the end of the year, four Price Clubs will be open in Canada. Toys "R" Us, long established in Canada, now operates in Britain, West Germany, Hong Kong, and Singapore. France is next. Exults Lazarus: "We're getting terrific store sales volumes. It's what the U.S. was like ten years ago."

JODI BUREN

Expanding into retailing: Liz Claiborne plans to open 13 First Issue stores by year-end.

Companies with plenty of cash look for strategic acquisitions. Reebok is the most active so far. Over the past two years it spent almost $300 million to buy Rockport and Avia, two fast-growing competitors. Fireman says both companies exemplify what he calls the "sense of aliveness" that the Reebok brand stands for. "Reebok is two companies," Fireman explains. "Reebok the brand, and Reebok the corporation, which acquires younger companies that can connect with our image. One of the things Reebok the corporation can't get caught up in is becoming the product. That's what happened to Cadillac. They built the same product, but the customers moved on. Reebok the brand will compete with Avia the brand. I figure that between the two of them, one will win."

Businessland also acquired two smaller competitors, but for much more straightforward reasons. Explains Norman: "Our biggest suppliers, IBM and Apple, were putting moratoriums on the numbers of dealers they were licensing. We needed to make these acquisitions to get authorized IBM and Apple locations. We were buying medallions."

The most popular growth strategy is to diversify into related product lines and services. Liz Claiborne expanded from its initial base of sportswear into dresses and knitwear. The company has also started a surprisingly successful menswear division. Says Chazen: "We discovered that 70% of our women customers also bought clothes for their husbands." Price Clubs will soon be opening pharmacies, as well as photo-processing, optical, and automotive service centers. New from Reebok: golf and bicycling shoes, plus Weeboks for children.

IN ADDITION to its stores, Businessland now sells its products through a mail-order catalog. The company is also beefing up its service operation. In the future, says vice chairman and co-founder Enzo Torresi, "We will help you tie your personal computers into your mainframes. The potential for revenues is three times bigger in service than in product sales." Adds Norman: "We'll try anything if it fits our basic strategy." Compaq, the most tightly focused company in the group, is looking into building such peripheral products as printers.

Many of the billion-dollar kids are also committing themselves to ambitious and risky ventures outside their proven lines of expertise. Price Co. is getting into real estate development with plans to build shopping centers in Connecticut, California, and Arizona. Liz Claiborne moved into retailing. "It's a huge opportunity," says Chazen. "We saw retailers like the Limited and the Gap move into manufacturing, and we said, 'We can manufacture better than these guys. Why don't we get into retailing?' " Five new Liz Claiborne stores, called First Issue, are already open, with eight more planned by the end of the year. Toys "R" Us bred Kids "R" Us, a new chain devoted to childrens' clothes. Says the ever ebullient Lazarus: "We planned the store for Mama. She's our customer. All the things she needs in one place. This will be a billion-dollar business in two years. You can go in with confidence. If you look at it that way, business is very easy."

No company's supergrowth can continue for long. If Sun were to grow as fast in the next five years as it did in the past five, it would be bigger than Du Pont. Five years after that it would be half the current size of the U.S. economy. In a more realistic scenario, these companies that have weathered the strains of exceptional growth must soon face a new challenge: surviving the slowdown. For them as for all prodigies, adjusting will be difficult, and as adults some may not fulfill the promise of their adolescence. Win or lose, they are teaching lessons in a new business phenomenon—and inspiring entrepreneurial fantasies that no caveats can diminish. ■

THE SELLING OF AMERICA (CONT'D)

No longer content with IOUs, foreign investors are buying up real U.S. assets. Don't blame them, though. The problem is that America is living beyond its means. ■ *by Jaclyn Fierman*

NEXT TIME an American folk singer belts out the lines "This land is your land, this land is my land," he ought to change his tune—or at least his lyrics. This country is *not* owned exclusively by its citizens, not by a long shot. The U.S. is up for sale, and foreigners are planting flags from California to the New York island. Never has their buying been so dramatic. And never has it made the natives so restless.

BILL BALLENBERG

A Bridgestone engineer *and her Japanese boss inspect a truck tire in La Vergne, Tennessee.*

What's behind the flurry? Having been triply burned by the dollar's fall, the volatile bond market, and Black Monday, foreign investors increasingly prefer to buy things over which they can exert some control. For Americans, that means the land right out from under them, their forests, and their factories. It means icons as sacred as Bloomingdale's and A&P. Even the Brooks Brothers label, beloved by generations of New England preppies, may soon belong to Margaret Thatcher's underwear purveyor, Marks & Spencer.

Enough already, says a wide swath of Americans. Smick Medley & Associates, a public policy advisory firm in Washington, D.C., recently set out to measure the nation's attitude toward foreign investment. A survey of that attitude found it overwhelmingly negative. Nearly 80% of Americans outside of the opinion-making elite would like to limit foreign buying, and 40% want to halt it altogether. "Joe America is nervous and suspicious," says the firm's president, David Smick. "He is worried about losing control over his destiny."

Not an enlightened response. Shutting out foreign shoppers would only treat the symptom, not the problem. The fact is, as long as the U.S. runs a huge trade deficit, foreigners will be stuck with wads of dollars to spend—the dollars the U.S. hands them in exchange for shiploads of Toyotas, Hermès scarves, and Gucci handbags. And for those dollars to have purchasing power, they must ultimately be spent in the U.S.

The gaping federal budget deficit is reason enough to welcome foreign investors. They have already bought a sixth of the U.S. government's debt. By investing in the U.S., they help finance the country's growth, since Americans are not saving enough to satisfy the nation's investment needs (see The Economy).

Foreign investment *comes by land and by air.*

With the intensity of bargain hunters on a bender, foreigners have accumulated U.S. assets worth an estimated $1.5 trillion, nearly a third more than the value of all the assets the U.S. owns abroad. Roughly 80% of that is still financial assets, either bank deposits or portfolio investments in corporate and government securities. But a growing share—now $250 billion worth—represents hard assets, property or so-called direct investments in new or existing businesses.

So quick is their pace that in just a few years foreigners have already come close to catching up to the $298 billion in hard as-

A blimp assembled in North Carolina by British-owned Airship Industries advertises Japan's Fuji film over Manhattan, whose largest landlord is Canadian.

sets overseas that the U.S. spent decades accumulating. "Last year brought the biggest surge I've ever seen," says Gregory Fouch, who keeps count for the U.S. Commerce Department. Foreigners spent over $40 billion on hard assets in the U.S. in 1987, up 60% from 1986.

And these numbers are conservative. Though the U.S. data-gathering net is the world's best, it has its holes. For example, the Commerce Department doesn't keep track of limited partners; that's the way many foreigners make big investments in real estate in the U.S. And untold billions flow noiselessly and illicitly into Florida condominiums and U.S. bank accounts each year as flight capital from abroad.

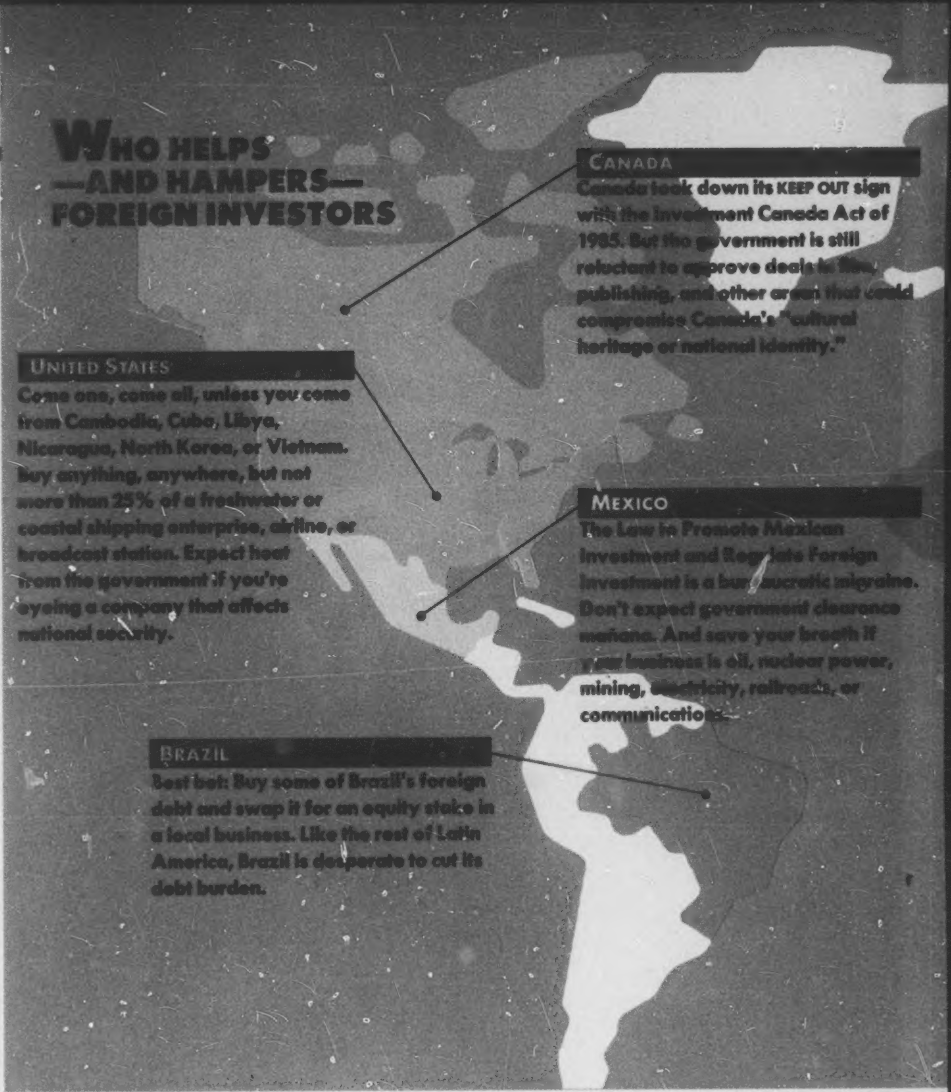
If the numbers are somewhat fuzzy, the trend is undeniable: Foreigners want *things* American. Their tastes for the tangible extend across the map, from Kentucky racehorses and Texas refineries to New England factories and Sonoma Valley vineyards. They own farmland in all but one state (Rhode Island so far has eluded them) and sizable hunks of Wall Street, both its real estate and the investment banking business. They sign paychecks for three million Americans, including employees of 19 FORTUNE 500 companies.

FOREIGNERS have found virtually every industry enticing, but their passion lately is the country's restructured and newly competitive manufacturing sector. Last year they bought a $16.7 billion hunk of smokestack America, roughly double their previous record, set just the year before. If the current pace of purchasing continues through the rest of this year, according to calculations by Morgan Stanley's investment bankers, the buying of smokestack properties will double yet again. That brings the foreign share of the U.S. manufacturing base to an impressive 10%, nearly twice the level of other major areas of the economy.

Like bees to honey, foreign shoppers are drawn to well-focused, streamlined businesses. The hottest properties currently: low-tech merchandise such as tires, natural gas, and cement—products that cost too much to ship to the U.S. from overseas. Foreigners also gravitate to research-intensive industries like chemicals and pharmaceuticals because it is cheaper to spread development costs over a huge consumer base.

REPORTER ASSOCIATE *Rosalind Klein Berlin*

WHO HELPS —AND HAMPERS— FOREIGN INVESTORS



CANADA
Canada took down its KEEP OUT sign with the Investment Canada Act of 1985. But the government is still reluctant to approve deals in film, publishing, and other areas that could compromise Canada's "cultural heritage or national identity."

UNITED STATES
Come one, come all, unless you come from Cambodia, Cuba, Libya, Nicaragua, North Korea, or Vietnam. Buy anything, anywhere, but not more than 25% of a freshwater or coastal shipping enterprise, airline, or broadcast station. Expect heat from the government if you're eyeing a company that affects national security.

MEXICO
The Law to Promote Mexican Investment and Regulate Foreign Investment is a bureaucratic migraine. Don't expect government clearance mañana. And save your breath if your business is oil, nuclear power, mining, electricity, railroads, or communications.

BRAZIL
Best bet: Buy some of Brazil's foreign debt and swap it for an equity stake in a local business. Like the rest of Latin America, Brazil is desperate to cut its debt burden.

The assault on the industrial heartland has made many Americans feel vulnerable. Foreign investment is suddenly noisy, front-page news, a far cry from the quiet purchases of yore. Public opinion is deeply divided. Should the U.S. cheer on these acquisitive aliens or kick them out before it's too late? Does their presence force the nation to become more competitive or knock it to its knees? Defenders and detractors in Congress have proposed a range of solutions that reflect the nation's wrenching ambivalence. Their compromise: a section in the embattled trade bill enabling the President to block foreign acquisitions of companies vital to national security.

WHILE AMERICANS may find today's situation unsettling, it is hardly unprecedented. From the time of the Pilgrims to World War I, the U.S. was a debtor nation, a sponge for money that went to build railroads, canals, utilities, and telephone systems. Foreigners sold off their U.S assets after World War II and began to borrow instead, quickly turning the U.S. into the world's largest lender. Pushing overseas, Coca-Cola, General Motors, and other multinationals started piling up the nation's huge stock of foreign assets. It wasn't until this decade that the tables turned again, whipped around by America's towering twin deficits.

Paranoid Americans should take a page from their own past: U.S. multinationals did not colonize Europe, despite widespread fear that they would back in the 1960s. Foreign buyers have a long way to go before they take over the U.S. Their assets may loom large over urban landscapes and some industries, but so far they account for a mere 2% of U.S. corporate profits and only 6% of GNP. Foreigners own 12.5 million acres of U.S. farmland. But that hardly amounts to endless fields of grain; it's less than 1% of the total.

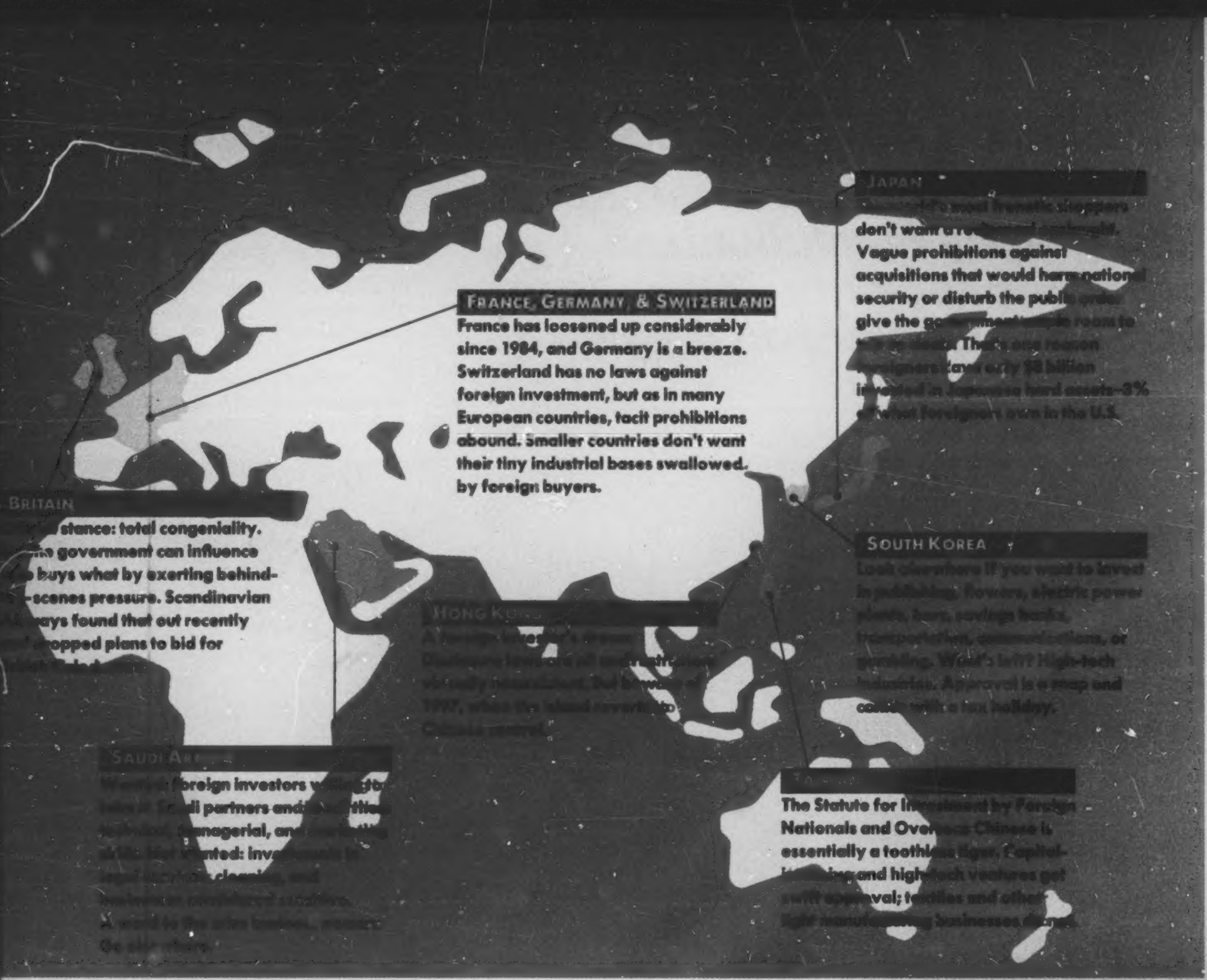
Though there are plenty of exceptions to prove the rule, corporate investors from abroad are generally upstanding folk. They create jobs, both in their companies and for the many businesses that serve them. They pay around $8 billion in corporate taxes and $80 billion in wages, and boost U.S. exports by some $55 billion. They also can leave an indelible mark on managers and workers by introducing technological and operating improvements imported from abroad.

Long aware of the benefits, state and local politicians aggressively seek foreign investment. They battle each other for dollars from abroad, using incentives like tax holidays and new roads as bait. "It's hardball competition, the Blues and the Grays all over again," says Carl Koch, who is Alabama's chief salesman in West Germany. "I'm not above reminding potential buyers about higher labor rates and other problems they're likely to encounter in the North. It's dirty pool, but what the hell."

Tennessee takes a more subtle approach. Already home to 55 Japanese companies, the state published a glossy $49.95 coffeetable book to lure even more. The author, former governor Lamar Alexander, promotes Tennessee as a home away from home. "Tokyo and Nashville are on the same latitude," he writes. "The dogwoods bloom when the cherry blossoms do." Indeed, in certain neighborhoods in Nashville sushi bars are as pervasive as the sound of country music.

True, some people find the foreign touch downright heavy-handed. Tired, as he put it, of behaving like "indentured servants" to "British masters," Richard Lord and five top executives recently stormed out of Lord Geller Federico & Einstein, a New York ad agency acquired last summer by the British agency WPP Group. The sudden exodus by the creators of the award-winning IBM ads, graced by a Charlie Chaplin look-alike, stunned Madison Avenue. It also focused attention on the cultural problems that can arise when foreigners acquire service businesses that depend heavily on talented employees, the most mobile asset of all.

EVEN LOUDER protestations come from those whom foreigners have challenged head on. By 1990, for instance, U.S. auto parts producers may have to contend with some 300 foreign competitors on their turf. Particularly vocal about what she calls "the pinch" is June-Collier Mason, head of National Industries, a Montgomery, Alabama, parts supplier whose annual sales total $110 million. Fighting what really amounts to capitalism


JAPAN
[illegible] most frenetic shoppers don't want a [illegible]. Vague prohibitions against acquisitions that would harm national security or disturb the public order give the government ample room to [illegible]. That's one reason foreigners have only $8 billion invested in Japanese hard assets—3% of what foreigners own in the U.S.
FRANCE, GERMANY, & SWITZERLAND
France has loosened up considerably since 1984, and Germany is a breeze. Switzerland has no laws against foreign investment, but as in many European countries, tacit prohibitions abound. Smaller countries don't want their tiny industrial bases swallowed by foreign buyers.
BRITAIN
[illegible] stance: total congeniality. The government can influence who buys what by exerting behind-the-scenes pressure. Scandinavian Airways found that out recently and dropped plans to bid for [illegible]
SOUTH KOREA
Look elsewhere if you want to invest in publishing, flowers, electric power plants, [illegible], savings banks, transportation, communications, or gambling. What's left? High-tech industries. Approval is a snap and comes with a tax holiday.
HONG K[illegible]
A foreign investor's dream. [illegible] laws are all [illegible] virtually [illegible]. But beware of 1997, when the island reverts to Chinese control.
SAUDI AR[illegible]
Wanted: foreign investors willing to [illegible] Saudi partners and [illegible] technical, managerial, and marketing skills. Not wanted: investments in [illegible] cleaning, and [illegible]. A word to the wise [illegible]: Go elsewhere.
[illegible]
The Statute for Investment by Foreign Nationals and Overseas Chinese is essentially a toothless tiger. Capital-intensive and high-tech ventures get swift approval; textiles and other light manufacturing businesses [illegible]

SOURCE: ARTHUR YOUNG INTERNATIONAL

at its best, she has formed Citizens Against Foreign Control of America, a self-serving organization that prints newsletters and gives lectures. Grouses Mason: "We're peddling our country like soap powder."

The balking will get even worse as the buying binge grows. Robert Lessin, a managing director of Morgan Stanley, expects foreign acquisitions this year to approach $75 billion, almost double last year's level. Major West German corporations alone are sitting on $50 billion of excess cash that can be used for acquisitions, much of which could flow to the U.S. He expects continental Europe to remain at the heart of the action for the rest of the Eighties. Dominating the 1990s will be Japan, Taiwan, and Hong Kong. Asian nations are following the natural progression of foreign buyers: They are slowly switching from passive investments for their financial portfolios to hands-on, tangible ones as they gain confidence in their ability to hold forth in new markets.

Japan has already begun to make waves of tidal proportions. Behind the momentum are its $83 billion current-account surplus and a shortage of domestic buying opportunities. Bonds, once a haven for Japanese investors, are out. Japan's major institutional buyers lost over $10 billion in two years as the yen rose and bond prices fell. Much preferred these days are hard assets. Last year the Japanese bought or built businesses worth $7 billion, bringing the value of their direct investments to $30 billion, triple the level of five years ago.

The Japanese are also hungry for real estate. Last year alone they invested in projects worth an earthshaking $13 billion, according to a study just released by the Los Angeles–based accounting firm Kenneth Leventhal & Co. Their $26 billion of U.S. holdings includes virtually all of Waikiki Beach, over a quarter of the best buildings in downtown Los Angeles, and prime urban landmarks from New York to Seattle. In the

KATHERINE LAMBERT

Auto parts maker *June-Collier Mason preaches xenophobia to a corporate audience.*

Direct Foreign Investment in U.S. by Country . . .

In billions of U.S. dollars

	Total end 1986	1987 Inflow	Total end 1987	% Increase
Britain	$51	$19	$70	37.3%
Netherlands	$43	$9	$52	20.9%
Japan	$23	$7	$30	30.4%
Canada	$18	$1	$19	5.6%
West Germany	$17	*	$17	—
Switzerland	$12	$2	$14	16.7%
Netherlands Antilles	$8	$1	$9	12.5%
France	$7	$1	$9**	17.6%
Other	$30	$1	$30**	—
Total	$209	$41	$250	19.6%

*Less than $500 million. **Numbers are inconsistent due to rounding.

and by Industry

Industry	Amount
Manufacturing	$85
Trade	$45
Petroleum	$36
Real Estate	$24
Insurance	$16
Banking	$13
Finance	$7
Mining	$5
Other	$19
Total	$250

SOURCE: DEPARTMENT OF COMMERCE

biggest hotel deal ever, Japan's Aoki Corp. recently teamed with the Robert M. Bass Group of Texas to buy the Westin hotel chain for $1.5 billion. This year, the study predicts, Japan's U.S. real estate investment could reach a staggering $19 billion.

The Japanese are wild for U.S. real estate in part because land is so dear back home. Prices in downtown Tokyo can run as high as $24,000 a square foot; that's about ten times what prime commercial space sells for in New York City. Starved for opportunities, wealthy Japanese speculators have resorted to ringing doorbells in Honolulu and offering people outrageous sums for their homes. Mayor Frank Fasi decided that residential real estate inflation had gotten so out of hand that he tried—and failed—to pass state legislation that would bar further foreign buying.

Busy as they are, the Japanese are by no means the biggest U.S. shoppers. First prize goes to the British, whose cumulative holdings in the U.S. total $70 billion. They were also the biggest buyers last year, accounting for four of the year's top ten foreign acquisitions. The Netherlands, thanks to ample investments in oil made over many years, has accumulated $52 billion in assets, and is second overall behind the U.K. Japan, with $30 billion minimum, is solidly in third place.

If the devalued dollar had already turned the U.S. into a discount shopping mall, the October stock market crash created a veritable fire sale. The British engineering giant TI Ltd. offered $144 million last September for Detroit's Bundy Corp., which makes metal tubes for cars and refrigerators. The company withdrew the offer after the crash but recently reinstated it—this time for $18 million less. Says a British tycoon: "It's a jolly good time to buy." Indeed. The British announced 98 deals in the U.S. during the first three months of 1988, up from 57 during the same period last year.

Even the French, laggards in the takeover race, are moving with newfound dispatch. "We're now prepared to be woken up early Sunday morning with a phone call telling us to catch the next flight to the U.S. so we can sign a deal that night," says Pierre Vaillaud, executive vice president of the French oil and gas company Total. Last year Total snatched CSX of Houston for $612 million.

In the rush, the gentlemanly manner with which foreigners once approached U.S. targets has all but disappeared. Role models of the new era are fighting men like Sir Gordon White, chairman of the American arm of Britain's Hanson PLC, whose 120 U.S. businesses sell such tokens of Americana as Ball Park franks and Endicott Johnson's sensible shoes. Also active in the ring these days is Canadian heavyweight Robert Campeau, who knocked out R.H. Macy in a 15-round fight for Federated Department Stores. The $6.6 billion purse puts the owner of Ottawa's skyline in charge of a retailing and real estate empire that includes the 16 branches of Bloomingdale's and 549 other stores. Concedes Campeau, whose final bid of $73.50 a share was almost 60% higher than his original offer: "We didn't steal it."

Price is sometimes beside the point. Foreign buyers say they are paying

Top Ten Foreign Acquisitions (1/1/87 to date)

Rank	Transaction	Value in billions of U.S. dollars
1	British Petroleum (Britain) buys the 45% of Standard Oil that it didn't already own	$8.0
2	Campeau Corp. (Canada) acquires Federated Department Stores, one of the largest U.S. retailers	$6.6
3	Unilever (Britain/Netherlands) purchases the U.S. consumer products company Chesebrough-Pond's	$3.1
4	Hoechst (West Germany) acquires Celanese Corp.	$2.9
5	Bridgestone (Japan) buys Firestone Tire & Rubber	$2.6
6	Sony (Japan) purchases CBS Records from CBS	$2.0
7	Imperial Chemical Industries (Britain) acquires Stauffer Chemical from another foreign company, Unilever	$1.7
8	Hanson PLC (Britain) acquires Kidde Inc.	$1.6
9	Aoki Corp. (Japan) and the Robert M. Bass Group purchase Westin Hotel Co. from Allegis Corp.	$1.5
10	Montedison (Italy) buys 38.7% of the plastics company Himont from Hercules, doubling its interest to 77.4%	$1.5

This modest establishment, *Buckram Oaks Farm, in the heart of bluegrass country, is the old Kentucky home of Saudi horsebreeder Mahmoud Fustok, who checks out forelegs at an auction.*

WILLIAM STRODE (2)

for more than just assets. Some are anxious to set up shop in the U.S. before any protectionist barriers lock them out. "Our foresight paid off when television imports were restricted," says Tsutomu Sugiyama, a spokesman for Sony, which broke ground for a U.S. factory in 1972. Other investors are happy to pay a premium for political stability. "The U.S. is a very safe place to invest," says Gilbert de Botton, head of London-based Global Asset Management, which manages $1.6 billion. "You are as comfortable there, if not more so, than you are in your own home."

JACKSON HILL—SOUTHERN LIGHTS

Americans *make these laser discs for the RCA label, owned by Germany's Bertelsmann.*

Companies that need to be close to their customers are quite willing to pay for the privilege. Japan's Bridgestone Tire recently overwhelmed rival bidder Pirelli Co. of Italy when it offered $2.6 billion for Firestone Tire & Rubber. Some of Bridgestone's best clients are the Japanese auto manufacturers, which are gradually shifting operations abroad and by 1992 will produce an estimated two million cars in North America. That's at least eight million tires Bridgestone felt it could not afford to lose. Puncturing all hope Pirelli had of winning, Bridgestone jumped its price 37% above Pirelli's final bid. J. Tomilson Hill, head of mergers and acquisitions at Shearson Lehman Hutton, calls this "the biggest bidding leap I've seen in 15 years in the merger business."

GLOBALLY MINDED investors want to play in the world's biggest market. "We were faced with bowing out of the competition if we didn't get into the U.S. market," says Alain Gomez, CEO of Thomson SA, the French consumer electronics and defense company. Last year Gomez swapped most of his medical electronics business, plus $650 million, for General Electric's RCA division. That made Thomson the leading television producer in the U.S. Says Gomez: "We jumped in where we were absolutely nonexistent."

Americans buy 32% of the world's color television sets and 30% of its chemicals, and generate half the world's ad revenues. No wonder acquirers with world-class pretensions find the place irresistible. "The U.S. is also the cultural heart of the world," says Michael Dornemann, executive vice president of the German media giant Bertelsmann. That fact propelled him back and forth across the Atlantic 80 times in two years in search of acquisitions. "I lost several pounds in the process," he says. But he fattened Bertelsmann into the world's leading media company when he managed to land Doubleday and RCA Records on the same day.

The U.S. still has a lot to teach too, a draw for companies in search of knowledge. Taiwan's Acer Inc., which makes personal computers, wanted to learn about small business computers. So it bought

JANE TANAKA

Thai vintner *Domaine St. George grows grapes on 36 acres in Sonoma County.*

Counterpoint Computers of San Jose, California, for $20 million last November and saved millions in research. Linking up with universities can also buy know-how. Japanese companies endow 16 chairs at MIT and fund some $2 million in research there. Financing high-tech start-ups is another route: Fully one-quarter of the money in U.S. venture capital funds comes from overseas. To expand its research in genetic and molecular technology, West Germany's Bayer backed three Yale University professors when they set up Molecular Diagnostics Inc. in West Haven, Connecticut.

Technology transfer flows both ways, of course, and that is ample reason to cheer corporate immigration. Over and over, foreigners have revitalized U.S. companies with new production methods, guiding them back to profitability. When Bertelsmann bought RCA Records last year, the venerable record company was losing some $30 million a year. Dornemann, who heads up Bertelsmann's music group, quickly reorganized the company, doubled investment in the label's recording artists, cut overhead by 17%, and closed a money-losing plant. The result: RCA now turns a $75-million-a-year profit.

Who Owns "California" Vineyards

Almadén	Britain
Beaulieu	Britain
Beringer	Switzerland
Buena Vista	West Germany
Callaway	Britain
Château St. Jean	Japan
Château Souverain	Switzerland
Cuvaison	Switzerland
Domaine Chandon	France
Domaine Michel	Switzerland
Domaine Mumm	Canada/France
Domaine St. George	Thailand
Firestone	U.S./Japan
Franciscan	West Germany
Gloria Ferrer	Spain
Inglenook	Britain
Maison Deutz	France/Switzerland
Piper Sonoma	France
Ridge Vineyards	Japan
Roederer U.S.	France
St. Clement	Japan
San Martin Winery	Britain
Simi Winery	France
Sonoma Vineyards	Britain
Sterling	U.S./Canada
Winery Lake	Canada

IN AN EXTENSIVE STUDY of 250 Japanese-owned companies in the U.S., Columbia University business school professor Martin K. Starr has identified several examples of management superiority. For one thing, the Japanese tend to bring products on line twice as fast as U.S. companies. And while Japanese firms have to rework or discard less than 1% of their products, U.S. manufacturers chuck, on average, 4% of their output. When Japan's Bridgestone took over one of Firestone's failing plants in 1983, workers were producing only 600 tires a day. By adding a few shifts and retraining the work force, Bridgestone now profitably produces 3,100 tires a day.

Like it or not, foreign investment compensates for a multitude of bad economic habits Americans have developed. Among the most egregious: a persistent unwillingness to save and invest at respectable levels. The Japanese sock away some 16.7% of GNP and invest 13% at home. They spend the difference abroad. By contrast, Americans put away only around 2% of GNP but investment in the U.S. runs to 5.5%. How can the U.S. invest more than it saves? You guessed it: with help from overseas. Foreign auto producers alone have invested $5.2 billion in the U.S., a welcome inflow at a time when U.S. auto producers are closing plants and laying off workers.

So trying to boot out the bounty hunters would be a terrible mistake. Until the U.S. learns to do for itself again, it should be grateful for the help. But let it learn quickly: Profligacy inevitably takes a toll. "We are much like a wealthy family that annually sells acreage so that it can sustain a lifestyle unwarranted by its current output," says Warren Buffett, the legendary investor from Omaha. "Until the plantation is gone, it's all pleasure and no pain. In the end, however, the family will have traded the life of an owner for the life of a tenant farmer."

Along the way, the family's standard of living will gradually erode. The government already pays $24 billion in interest to foreigners, for instance. That's more than the federal government spends on schools. And interest rates are higher than they would be if the U.S. did not have to finance a deficit and lure investors to buy that debt. Because of their clout in the U.S. bond market, "foreigners have a say over how many houses get built in this country," says Robert McCauley, a senior economist for the Joint Economic Committee of Congress.

Let the seller beware. Foreigners will have an even greater say as their claims on U.S. assets spiral. But the answer is not to regulate how the world spends its dollars. Instead, the U.S. should rediscover the lost arts of moderation and saving. Buried in its current course is a death wish: Unless the U.S. improves the trade deficit, foreigners will have accumulated enough dollars to buy every publicly traded company in the country in less than 20 years. That's a possibility that should really make the natives jumpy. ■

EUROPE'S BEST BUSINESS SCHOOLS

They aren't pale imitations of Harvard anymore. Students come from all over the world to master international business—and pull down top salaries when they graduate.

■ *by Shawn Tully*

JAYNE BUXTON, 26, was bumping along as a $25,000-a-year media buyer in her hometown of Montreal. Then she went to business school and turned into a hot property. Her best offer among six came from the London branch of a top U.S. consulting firm: $90,000 a year to start, plus a $9,000 reimbursement for part of her tuition and a signing bonus—or "golden hello"—of more than $15,000. In the end the vivacious blonde accepted a slightly less sumptuous package from the London office of Management Analysis Center, a consulting firm founded by professors from Harvard Business School.

SERGE COHEN

Insead is No. 1: *Dean Antonio Borges*

Breathtaking earning power for MBAs is hardly new. What makes Buxton's story different is that her degree came not from Harvard, Stanford, or Wharton, but from the International Management Development Institute, or Imede, a Swiss business school that runs just 67 students through a compact 11-month program. Once pale imitations of Harvard, top European business schools are winning high marks for their strikingly original programs and the fat, U.S.-style salaries their graduates command.

Europe's best schools offer a pedagogic product that their bigger, older U.S. rivals do not. While students and courses at Harvard or Wharton are largely American, European schools have an overwhelmingly international student body and point of view. Students study, socialize, and negotiate with classmates from Spain, India, Japan, and as many as 20 other countries—all in English. From that rich cultural mosaic come managers who understand how foreigners think and global markets work.

FORTUNE has ranked the top five business schools in Europe using a variety of criteria, including entrance standards, quality of faculty, and success in placing graduates in high-paying jobs with top multinational companies. At the head of the class is the school that virtually invented the concept of international business education, Institut Européen d'Administration des Affaires, or Insead, in Fontainebleau, France. Founded in 1959 and still growing, the school is a powerhouse driven by big-name professors lured from leading U.S. schools. Tied for second are London Business School, a top purveyor of talent to the City of London, and Imede, which more than makes up for its small size with its rigorous, academic boot camp–like program and superb roster of students. Next comes Imede's neighbor on Lake Geneva, International Management Institute (IMI), which began as Alcan's in-house management training facility. Fifth place goes to Instituto de Estudios Superiores de la Empresa (IESE), a comer from Barcelona that's growing fast in number of students and prestige.

Several schools that once attracted students mainly from their own countries are becoming more international and may soon challenge these five. Nearly a third of the students in the class of 1988 at Manchester Business School in Britain's industrial heartland are foreigners, almost twice the proportion of non-Americans at Wharton. Rotterdam School of Management, a branch of Holland's prestigious Erasmus University, introduced a popular English-language program three years ago. Two top national business schools, Scuola di Direzione Aziendale-Bocconi of Italy and Institut Supérieur d'Administration of France, will soon introduce business classes taught in English.

The concept has even penetrated the Iron Curtain. In September, the Budapest International Management Center will start a one-year program for Soviet and East European managers. Indiana University will supply the curriculum; West European, Japanese, and American professors will teach in English.

The European schools are developing faculties as cosmopolitan as their student bodies. Professors hail from around the globe—but usually boast Ph.D.s from top U.S. schools. A case in point is Antonio Borges, 38, the associate dean in charge of Insead's MBA program. A native of Portugal, Borges received his Ph.D. in economics from Stanford in 1980, returning to his alma mater as a visiting professor in 1985. Fluent in English, French, and Spanish as well as Portuguese, Borges is a brisk extrovert who played on Portugal's national championship volleyball team.

Picked to head the MBA program in 1986, Borges is boldly expanding the faculty and putting a heavier accent on research. Says

At No. 5, *IESE in sunny Barcelona, graduating students hail from 27 countries, including India, the Philippines, and Japan. The fast-rising school is riding Spain's boom.*

REPORTER ASSOCIATE *Aimery Dunlap Smith*

PHOTOGRAPH BY ENRICO FERORELLI—DOT

he: "We're driving to become one of the top five business schools in the world in research. It's simple. Professors produce research or are fired."

The rise of the international MBA marks a fundamental shift in the way European companies hire managers and chart their careers. In the past executives came mostly from prestigious technical or professional schools. The cream of German management earned Ph.D.s in economics, engineering, or law. In France many of the business elite have degrees from the exalted Ecole Polytechnique, an engineering school that offers not a single course in finance, marketing, or accounting.

The new MBAs are among Europe's shooting stars of business. Sir John Egan, 48, chief executive of automaker Jaguar Ltd., and Iain Vallance, 44, the newly named chairman of British Telecom, picked up their MBAs at London Business School. Javier de la Rosa, 40, an IESE alumnus, is spearheading Kuwait Investment Office's $2 billion investment drive in Spain. Lindsay Owen-Jones, a 42-year-old Englishman from Insead, is No. 2 at France's L'Oréal, the world's largest cosmetics company.

Last year companies recruited some 3,500 MBAs from European schools, about double the number five years ago. That should leave plenty of room for growth: U.S. business absorbs some 67,000 MBAs a year. For recruiters, the quality that sets European MBAs apart is their international dimension. "We are offering international careers," says Al Fletcher, director of personnel for Ford of Europe. "Managers can expect to be moved to several countries, so it's a definite advantage to have an international education."

POWERING THE RISE is an explosion in two sectors with a heavy appetite for MBAs: consulting and financial services. Last year London Business School placed 33 of 84 graduates with financial firms in the City of London. Consulting firms—among them Boston Consulting Group and McKinsey & Co.—descended on Imede last fall, hiring one-quarter of its December graduates.

Some companies aren't ready for the impatient hotshots. "They want to become top managers too quickly," says André Mathieu, head of personnel for French automaker Peugeot. But his view is becoming less common. British electronics producer Thorn EMI hired 30 MBAs last year. German publisher Bertelsmann never dreamed of recruiting an MBA until five years ago; now it hires about half a dozen annually.

For London Business School MBAs, starting pay averages $56,000 a year, above the average at Wharton and roughly equal to Harvard's. The typical Insead grad pulls down more than the Harvard product—$60,000—though that can be partly attributed to the fact that he starts work at 29, two years later than the average Harvard MBA, and has more business experience.

To keep MBAs happy, companies cut a fast track through the corporate bureaucracy. Says Eberhard Pfeuffer, assistant director of personnel at Bertelsmann: "The only way to hold on to MBAs is to move them quickly. A good MBA can expect to start as assistant to a top executive. He could be heading one of our 35 publishing companies five years after joining us."

How the Five International Schools Stack Up

1 **INSEAD**	2 **LBS**	3 **IMEDE**	4 **IMI**	5 **IESE**
INSTITUT EUROPEEN D'ADMINISTRATION DES AFFAIRES	LONDON BUSINESS SCHOOL	INTERNATIONAL MANAGEMENT DEVELOPMENT INSTITUTE	INTERNATIONAL MANAGEMENT INSTITUTE	INSTITUTO DE ESTUDIOS SUPERIORES DE LA EMPRESA
Fontainebleau, France	London, England	Lausanne, Switzerland	Geneva, Switzerland	Barcelona, Spain
Founded 1959	Founded 1965	Founded 1957	Founded 1946	Founded 1958
320 students	**247** students	**67** students	**52** students	**412** students
$16,700 tuition for ten months	**$14,400**[2] tuition for 18 months	**$22,000** tuition for 11 months	**$24,700** tuition for nine months	**$17,200** tuition for 21 months
$60,000 average starting salary	**$56,000** average starting salary	**$72,000** average starting salary	**$70,000** average starting salary	**$32,000** average starting salary
The Rolls-Royce of European business schools is Insead. Low-slung steel and glass buildings dot the lushly wooded 17-acre campus, once the private hunting ground of French kings, 34 miles from Paris. Between classes, students gather around a crackling fire in the student lounge. Corporate recruiters are big fans, and more than half the students take jobs in a country other than their own.	London Business School is the closest thing in Europe to an American business school. A branch of the prestigious University of London, LBS mixes case studies with in-depth textbook teaching. Housed in a yellow brick complex on Regent's Park, LBS has a strong cachet across town in the City of London, Britain's financial capital. In 1986 and 1987 more than 40% of its graduates took jobs in financial services.	Small and spartan, Imede is renowned as an academic pressure cooker that transforms engineers and other specialists into cocky general managers in just 11 months. Founded by Nestlé as an in-house management training school staffed with visiting Harvard professors, Imede is independent now, but still has close ties to the company. True to its Harvard roots, Imede leans heavily on case studies.	Situated on a sloping, tree-covered campus across Lake Geneva from Imede, IMI is a no-nonsense training ground for managers much like its neighbor. With just 52 students, IMI is even smaller than Imede and has an even shorter program—a whirlwind nine months. The school has strong industrial roots, and the curriculum includes both case studies and practical projects, all produced under harassing deadlines.	One of Europe's largest business schools, IESE offers a U.S.-style two-year MBA. As the brainchild of the founder of Opus Dei—the powerful, worldwide organization of lay Catholics—IESE has deep religious roots. Crucifixes hang on classroom walls. Courses in business ethics predate Boesky. But the atmosphere is anything but grave. Sangria is available at the two bars and students read under palm trees.

[1] LBS and Imede are tied for second in FORTUNE's ranking. [2] Students from outside the European Economic Community pay tuition of $21,800.

CHRISTOPHER CORMACK

From Regent's Park, *London Business School sends grads to the world's financial markets.*

Teaching at the schools is a mix of the Harvard case method and hands-on consulting projects. Insead spends about $500,000 a year developing cases drawn mainly from European companies. Students ponder how France's Alcatel went about absorbing the telecommunications business of onetime rival Thomson, the strategy behind L'Oréal's launch of Fiji perfume, and the task faced by Carlo De Benedetti when he took over Italy's ailing Olivetti—complete with a videotape featuring De Benedetti himself.

All the schools require some kind of consulting work. At Imede, teams of six students spend 4½ months working with companies. By following the advice of one such team, French packaging company Groupe Carnaud cut inventories by $35.7 million a year, boosting profits by $3 million in 1987.

Getting an MBA at Insead, Imede, and IMI takes less than a year. The pace is relentless, forcing many students to work 100 hours a week. Imede packs 990 hours of classroom and workshop teaching into 11 months, almost as much as Harvard spreads over a year and a half. Says a student: "My girlfriends didn't understand why I had to check into a monastery for a year." But most appreciate the grind as good training for high-pressure jobs. Says Graham Wickenden, 32, an Imede alumnus who is now an executive with British retailer Barker & Dobson: "At first you go through hell. Then you learn to work smart and organize your time."

The rich mix of nationalities creates an exciting, sometimes explosive cultural chemistry. "You spend a year managing diversity, which is what international business is all about," says Tidjane Thiam, 25, an Insead student from the Ivory Coast who passed up a chance to go to Wharton. L'Oréal's Lindsay Owen-Jones agrees, "What the U.S. schools are missing is the melting-pot aspect. If I hadn't gone to Insead, I never would have joined a French company."

The European schools favor cosmopolitan candidates with a flair for languages. At Insead, all students must speak French and English. More than half are also fluent in German, Spanish, or another language. Evelyne Hollands, 25, a student at IESE in Barcelona, is typical. A Dutch citizen who graduated from the University of Oregon, she worked in Spain and Brazil, and in addition to Dutch, speaks English, Spanish, German, and French.

THE SCHOOLS RESERVE plenty of places for non-Europeans. In Insead's June 1988 graduating class of 147 students from 25 countries, there are almost as many Americans and Canadians as French. Eleven students are from Japan. Students are divided into nationally mixed groups to maximize diversity. Says David Thompson, 26, an American student at Rotterdam: "There are so many group assignments, I began to feel that if I wanted to go to the bathroom I'd have to take someone with me."

A particularly motley group at Imede this year includes an Australian lawyer, a Pakistani naval architect, a French pharmacist, a Swedish engineer, and a Swiss hotel manager. On each case study, the group must reach consensus, a process that can take hours or days of wrangling. Cultural differences cut deepest in cases involving labor relations. Profit-minded American students don't hesitate to call for quick, severe layoffs. Europeans and Japanese are more concerned with protecting workers. In a recent group discussion at Imede, a hot debate broke out between an American and a Japanese student over whether to fire workers at an Ohio fer-

ROBERT VAN DER HILST

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tilizer company plagued by overmanning. The Japanese insisted that management should follow the concept of lifetime employment. "Not in Ohio!" declared the American, Duke Dean, who finally prevailed.

BUT A LITTLE Euro-thinking is rubbing off on Dean too. In a recent case the class was studying, a Dutch company ponders firing unneeded workers at an electronics plant. The problem is that the powerful council of workers, a fixture in Dutch companies, opposes the layoffs, though it cannot stop them. Dean sided with European and Japanese students against layoffs, arguing that the work committee would wallop productivity by sowing labor strife. "A few months ago," Dean says, "I wouldn't have taken that position. Thanks to the European students, you learn how things work here."

MBA candidates learn to listen carefully, probe colleagues for good ideas, and express their own views without antagonizing other members of the group. Americans become more diplomatic. "I have to soften my approach," says Richard Thompson, 31, an Insead student who has worked around the world in the oil services industry. A student from Italy, 30-year-old Nicoletta Calabi, has learned to back up her arguments with careful documentation—not always the Italians' strong suit. "In Italy," she says, "people have a tendency to talk too much and forget about the facts." For Asians an MBA is often a crash course in assertiveness training. "We're too patient," says Hemant Jalan, 31, an Indian student at IMI. "At first I was overwhelmed by the Latins. Now I jump right into the discussions." Akinori Kusuno, a Japanese student at IESE, is working hard to overcome the deferential Japanese style. "We're not talented at expressing ourselves," he says. "In Japan arguing is by nature seen as something bad."

As Europe sweeps away economic barriers on its historic march toward 1992, companies will turn increasingly to managers unfazed by linguistic and cultural boundaries. But Europe's unification is just part of the phenomenon sparking the rise of Europe's MBAs. Markets everywhere are becoming more global. To meet the challenge, U.S. business schools are internationalizing. Says Jeffrey Sheehan, associate dean of Wharton: "As we see it, if businesses and business schools don't have an international perspective, they're going to be left in the dust." At the moment European business schools are leading the pack. ■

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■ OVERPAID CEOs? HOW TO DEAL WITH JAPAN THE CONSTRUCTION MAFIA ■

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FORTUNE

THE INNOVATORS

America's Most Imaginative Companies—and How They Turn New Ideas Into Big Dollars

James Burke of Johnson & Johnson has quintupled R&D spending in the past ten years.

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FORTUNE

"I try to give people the feeling that it's okay to fail, that it's important to fail."

PAGE 50

"I'm not worried about any of these mob guys. What are they going to do, put a bullet in me? Look, I'm a survivor."

PAGE 128

"She is one of those people who break 2,000 eggs to make a three-egg omelet."

PAGE 173

"It was like pulling a pitcher in the ninth inning, when the team is behind, but just before they are about to win."

PAGE 187

"It's hard to rise above poverty if society keeps deriding the human qualities that allow you to escape from it."

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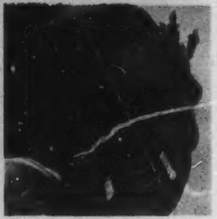

"Bathrooms are getting bigger and bigger. Tubs are getting bigger."

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Cover: James Burke was photographed by Abe Frajndlich in the employee cafeteria at Johnson & Johnson's New Brunswick, New Jersey, headquarters.

THE EDITOR'S DESK

A WOMAN who trains horses and imports English toys. Two fine artists. A former editor at *Columbia Encyclopedia*. An architect. A onetime personal assistant to Olivia de Havilland and Baron Philippe de Rothschild. A graduate of *Penthouse* magazine's photo department and its Call Me Madam advice column. A former producer-writer of a Puerto Rican TV show for children.

Don Biglands

Add a musician, a couple of actors, and two students in pursuit of Ph.D.s—a remarkable mix of people to sit regularly elbow to elbow, doing something very different. All work in FORTUNE's editorial operations department, which we call copy processing. The importer and horse trainer is Frances Owles; the artists, Alfred Graham and Leslie Brenner; the editor, Edith Fried; the architect, Dennis Williams; the personal assistant, Sara Solberg; and the *Penthouse* alum, Charles Attardi. The former TV producer is Donald Biglands, their chief.

The 26 men and women who work in around-the-clock shifts with Biglands are the too often unsung heroes of FORTUNE. They take every word we write and edit, every chart we draw, every photograph we select, every table of statistics we devise, every layout we design—and turn all these parts into a reality, the publication you now hold in your hands.

Reporting to Biglands, Carol Gwinn is chief of our copy desk. She and her team, led by deputy Charles Blackwell, oversee the style, spelling, and punctuation of *every* editorial word and number in the magazine. That's no small job: An average issue contains more than 50,000 words. As most of my colleagues freely admit, the copy desk's addiction to accuracy and aversion to dangling participles and other grammatical horrors have saved many red faces around here. Biglands is a perfectionist, but a modest one: "Great saves? When we catch something, it isn't a save. The mistakes I remember are the ones we missed."

The words and numbers that the copy desk approves are fitted to our pages by copy processing's technology department, headed by Randy Sizemore and his deputy, David Sloan. They use complex computer typesetting software to do everything that hot-type printers used to do.

Sizemore's group inevitably goes through extra travail—and many extra hours—whenever we publish minutely detailed tables of numbers, as in the annual Service 500 survey, our listing of the biggest non-industrial companies that begins on page 275.

In contrast to our unsung experts in the copy room, FORTUNE writers are known to our readers from their bylines. Three of the most prominent are Kenneth Labich, Myron Magnet, and Gary Hector. Labich writes regularly about the ongoing dogfights among the airlines, but for this issue's cover story, which begins on page 50, he identifies and examines the creative executives who do best at turning innovative ideas into profitable new products.

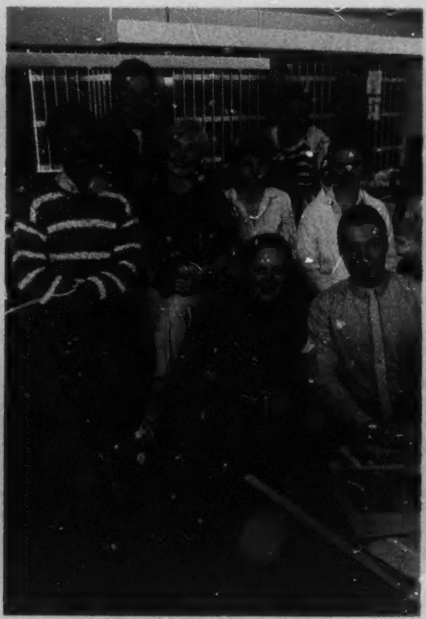
Myron Magnet is the author of a memorable series of special reports: the underclass, the homeless, the money society, and the crisis in schooling. He revisits these distressing facets of U.S. society to grapple with the question of why so much conspicuous poverty persists in affluent America (see page 206).

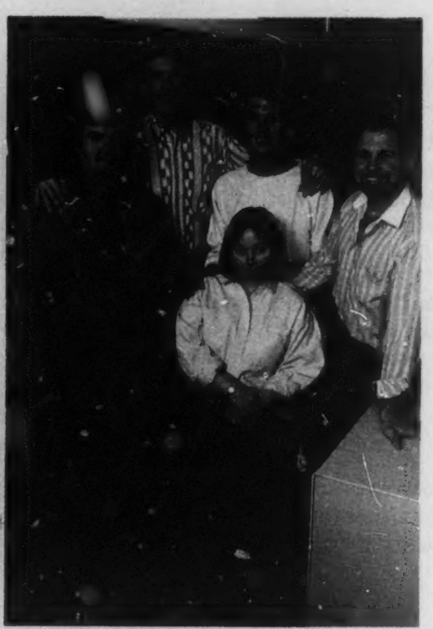
Gary Hector recently finished writing a book about deeply troubled BankAmerica. An excerpt begins on page 187. Its apt and inviting title: "Botching Up a Great Bank."

Marshall Loeb
MANAGING EDITOR

ANDY FREBERG (4)

Hail, hail, copy processing's day shift is all here.


The night shift works until midnight, when . . .


. . . the lobster watch takes over until morning.

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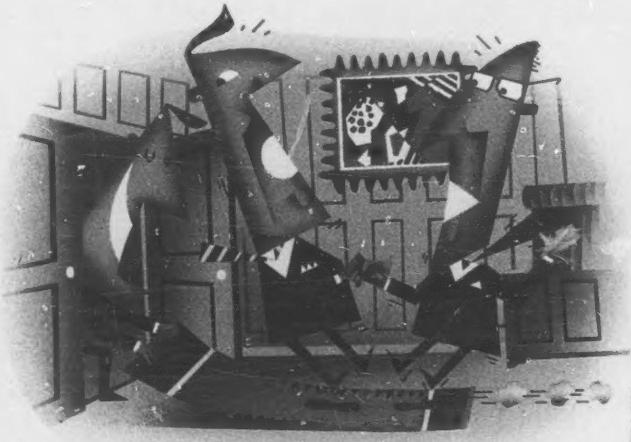
severance agreements. Typically such a clause states that the departing executive may not make derogatory statements in public about the company, its executives, or even its employees.

Some companies think big payoffs will keep ex-officers mum. But the tactic didn't work for **CBS** or **General Motors**. When it fired news president Ed Joyce in 1986, CBS rejected a gag clause, paid him at least $1 million, and assumed he would go quietly. Joyce skewered his ex-employer in *Prime Times, Bad Times*, published in May. GM stipulated that Ross Perot would have to repay $7.5 million of the $750 million GM gave him for his stock if he publicly criticized the auto company. (GM would likewise fork over $7.5 million for any criticism of Perot.) The Texan indicted GM management in FORTUNE (February 15), but the company never made him pay.

Publishers are not expecting a flurry of Reganlike books about the executive suite. Generally they don't sell. Says Joni Evans, publisher at the adult trade books division of **Random House**: "We're living in a kiss-and-tell world on every level, but the business books that really sell are about entire industries or are biographies that teach lessons." **—Patricia Sellers**

Let's make a deal

■ Corporate takeover battles often mimic the frenzy of TV game shows, where you have a deal only until the host rolls another, bigger box onto the stage. In the real world a target company may shake hands on a merger with a friendly party, may even sign a merger agreement with said friendly party, but the takeover falls apart when a hostile acquirer rolls another, higher bid onto the stage. You can't help wondering: When's a deal a deal?


TERRY ALLEN

Though the handshake may be firm, the takeover deal may not be.

This was the question **Pennzoil** put to **Texaco**, of course, when the bigger oil company waltzed off with Getty Oil. More recently **Federated Department Stores** signed a definitive merger agreement with **R.H. Macy** that lasted only until **Campeau Corp.** cooked up a better offer. And **J.P. Stevens**'s contract with **Odyssey Partners** was good only until **West Point–Pepperell**'s next bid.

It turns out that when a company is put into play by a hostile bidder, the courts expect that directors will become auctioneers seeking the best possible price for the shareholders. That's why most so-called definitive merger agreements now have escape clauses that allow the agreement to be voided if another bidder offers more.

The directors' decision to accept one offer over another will usually find favor with the court under the business judgment rule. The friendly acquirer who thought he had a signed contract might be inclined to sue the winning bidder, as Pennzoil did so spectacularly with Texaco. But the issue is often harmoniously resolved by dismembering the target and parceling out selected assets. That's how Macy's ended up with Bullock's and I. Magnin, and Odyssey Partners got Stevens's carpeting, industrial fabrics, and rubberized roofing divisions. **—W.E.S.**

Cutting back into the fast lane

■ When the speed limit went down to 55 mph across the U.S., traffic fatalities went down also. Then last year Congress permitted states to raise the limit to 65 on rural interstate highways, and 41 states did so.

RHODA BAER

Judith Stone of the National Safety Council: heeding the limit

RULES OF THE ROAD	**Speed limit on super-highways (miles per hour)**	**Deaths* (per 100 million miles driven)**
W. Germany	**None**	**3.8**
Italy	**87**	**3.9**
France	**81**	**4.8**
Britain	**70**	**3.0**
Canada	**62**	**1.5**
Japan	**62**	**3.5**
U.S.	**55**	**2.5**

*1985 figures.

Now Transportation Secretary Jim Burnley, a proponent of higher speed limits, is trumpeting the news that "there are no discernible differences [in death rates] between those rural interstates where the speed limit is still 55 and those where it's 65." Unfortunately, the best his Department of Transportation could do to back him up was an interim report issued three days later saying that the new limit had not been in effect long enough "to determine its long-term impact on safety."

Clearly it's a question of whose wheel you sit behind. Judith Stone, federal affairs director for the National Safety Council, opposes the new speed limit. Stone, who lives in D.C. and takes the subway to work, drives her used 1984 silver-gray Toyota Tercel mostly on weekends. "Even if the speed limit is 65, I don't feel comfortable going over 60," she says. Burnley says he holds his white 1987 Mustang convertible—the kind with the bumper skirts—to the speed limit in 55 mph states. But he says that he felt like a major hazard when driv-

BILL NATION—SYGMA

Japanese tourists work hard at Louis Vuitton to redress the trade balance.

ing his son around Boston at that posted speed; everyone else was doing 75.

The Transportation Department study is due in September 1989. Unfortunately, DOT won't get there any faster by looking into the speed limits in other countries and accompanying fatality rates. As the table on page 11 shows, there's little obvious correlation. **—Cynthia Hutton**

Born to shop

■ The weak dollar has a bright side: Japanese tourists chipped $2.1 billion off the U.S.'s $60 billion trade deficit with yenland last year. Each visitor frittered away an average of $1,000 on transportation, gifts, food, and lodging. (For how conventional exports are helping the trade balance, see The Economy.)

On the wings of their mighty currency, 2.1 million Japanese tourists visited the U.S. last year, and 32% more are expected this year. By far the most popular U.S. destinations are Hawaii, Guam, and American Samoa, although at Nippon Travel, Japan's second-largest private agency, bookings to New York City are up about 50%.

Fortunately for the trade balance, Japanese travelers don't shop at K mart. They swarm through New York's **Bloomingdale's**, Houston's **Neiman Marcus**, and San Francisco's **Saks** to buy perfume, cosmetics, and designer-name clothing. In New York City, they hang out at **Hermès**, **Chanel**, and **Hunting World**. At **Louis Vuitton** on 57th Street—where the most popular bag retails for $360, $128 less than in Tokyo—50% of the store's sales have been to Japanese visitors; the percentage is even higher at Vuitton's Rodeo Drive *bagagerie*. Says Barry Goldsmith, **Burberry**'s head of U.S. retailing: "Vans stop in front of our New York store daily."

The shopping spree will continue. Last July the Japanese government doubled the value of goods that can be brought into the country duty free to $1,600. By comparison, U.S. citizens are limited to a paltry $400 worth. **—C.H.**

Hot properties

■ For the first time in a decade insurance companies and the pension funds they manage are investing in residential real estate. Leery of the commercial market because foreigners have driven up prices and vacancy rates are high, insurers are buying apartment buildings. What do they know that you don't?

Perhaps the law of supply and demand. The stock of multifamily housing is tight and likely to get tighter. Tax reform eliminated the incentives that inspired developers and syndicators to build, and savings and loans, the traditional lenders, are still licking their real estate wounds. Construction of new units has dropped from 575,000 in mid-1985 to fewer than 300,000. Meanwhile, apartment rents have risen faster than the consumer price index for the past five years.

Insurance companies are as choosy as most other homebuyers. Says Claude Zinngrabe Jr., president of **Prudential Realty Group**: "We look for an existing property, fully leased, relatively new, in markets where demand exceeds supply and there is a diversified economy that looks as if it's growing." Free translation: California and Florida, among others. In the past nine months the Pru has committed $400 million to residential real estate, $118 million of which went to purchase a majority stake in five apartment projects in California.

Aetna's Apartment Development Fund raised $200 million in 1987, and it expects to collect another $200 million for a second fund by the end of this year. Like other investors, Aetna chooses properties with an eye to converting them to condominiums. Says James Richmond Jr., president of Aetna Realty Investors: "This is our exit strategy for five to seven years down the road, but if things are looking good, we don't have to exercise the option." **—C.H.**

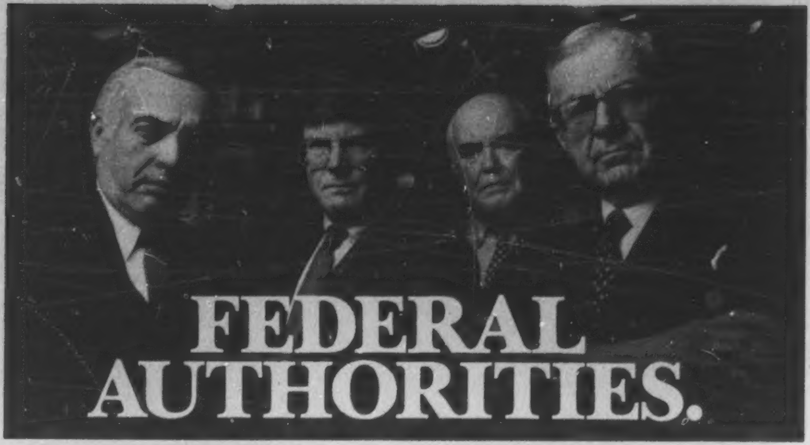
Golden hopes

■ It used to be that when there was a gold rush, you had to git where the gold was. Timing was important. A good horse helped. Nowadays it's simpler. Gold bullion coins, minted by countries as legal tender, are readily available from coin dealers. And large brokerage houses such as **Merrill Lynch**, **Prudential-Bache**, and **Shearson Lehman Hutton** have recently stepped up their coin marketing. Problem is, there's no gold rush.

Gold boosters are calling it the calm before the storm. The metal, as high as $850 an ounce in 1980, has been mellowing out at around $440 since January. But rising interest rates and heightened inflation fears could drive the price to $600 by fall, even if inflation stays in single digits, says Bruce Kaplan of A-Mark Precious Metals, a wholesaler. When that happens, coin dealers reckon Americans will finally accept bullion coins as a

MARIA ROBLEDO

Eagle, Maple Leaf, and Nugget



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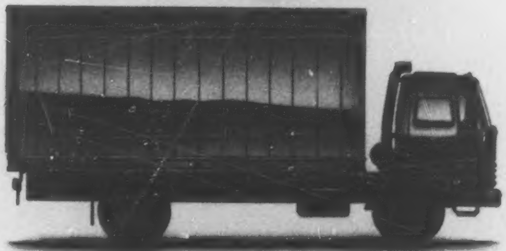

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LETTERS

firms in the near future will not be diversifying to maintain growth, nor will it be developing more business with fewer clients. The major challenge will be paying attention to clients and the successful execution of searches, which enables search firms to prosper in the first place.

MICHAEL C. LYNCH
Lynch Miller Moore Inc.
Chicago

The Attacker's Advantage

"Redrawing the Line on Defense" (April 25) was an excellent summary and analysis. But I was put off by a statement that keeps cropping up in such discussions: An attacker needs a numerical advantage of 2 to 1 to succeed. This ratio comes from Karl von Clausewitz. What goes unnoticed is that the legendary Prussian tactician added: at the point of attack.

The German army that invaded France in 1940 was smaller than the French army. Yet the French collapsed almost overnight because they were not concentrated at the point of attack and were too disorganized to respond promptly. Other examples abound. The problem with applying the 2-to-1 ratio to national defense is that the defender may never be able to commit his total strength where it's needed.

R. F. MACKNESS
Burbank, California

Catching Up

I am a little behind in my reading. I've just had a chance to see "Corporate Strategy for the 1990s" (February 29). It was the most substantive and well-articulated description of the dilemmas of formulating today's strategies.

JUDE T. RICH
President
Sibson & Co.
Princeton, New Jersey

Corrections

FORTUNE*'s directory of the 500 largest U.S. industrial corporations should have listed the ten-year earnings per share growth for Bemis Co. (342) as 11.1%, and for Worthington Industries (rank: 362) as 16%. Bemis also had a 27.6% increase in earnings per share from 1986 to 1987.*

In its May 9 issue, FORTUNE *stated that Ralston-Purina's dog food business suffered a slight market share decline in 1987. While the company's leading brand, Purina Dog Chow did lose share, Ralston's share of market from all of its brands increased.* F

Address letters to FORTUNE, Time & Life Building, Rockefeller Center, New York, N.Y. 10020. Letters may be edited for purposes of clarity or space.

COMPENSATION

THE WACKY, WACKY WORLD OF CEO PAY

An exclusive study shows that top-level compensation doesn't make much sense. If some boards of directors don't mend their ways, Washington could get into the act. ■ *by Graef S. Crystal*

FIGURE THIS OUT: Last year was not a sterling one for Bally Manufacturing, the casino operator and maker of pinball machines. Among the diversified service companies on FORTUNE's Service 500, Bally was in the lower half in return on shareholders' equity and total return to investors. CEO Robert E. Mullane's pay: $2.5 million. Digital Equipment Corp., by contrast, had a terrific year, with a big increase in profits and a standout stock performance and return on equity. CEO Kenneth Olsen's pay: $906,000.

What's going on? Does CEO pay make any sense at all? What factors most influence it—and are they the factors that *should* influence it?

To find out, FORTUNE commissioned me to conduct a statistical study of CEO pay at 170 of the largest U.S. industrial and service corporations. In 23 years as a compensation consultant, I have worked with a considerable number of major corporations and all manner of compensation plans. This study analyzed pay in relation to a wide range of factors, including the CEO's ownership of company stock, the composition of the board, and the company's performance and size. Among the conclusions: Just about all the rational factors you can think of, taken together, don't play a big role in determining CEO pay, and some factors that you might expect to influence it, or that ought to in a perfect world, don't matter at all.

The companies chosen for the study were the top 100 of last year's FORTUNE 500 and 100 top entries from last year's Service 500. Of these, 30 dropped off because they have since disappeared in mergers or acquisitions, or they elected new CEOs during fiscal 1987, or their results were so unusual that they defied classification—Pan Am and LTV, for example, had their numbers skewed by large negative net worths.

Compensation data came from proxy statements, which often are models of miscommunication (see box, page 76). Pay in the accompanying tables includes salary and bonus, plus the value of perquisites when listed. Gains on stock options can be terribly distorting because if a CEO hits it big by exercising valuable options one year, he is unlikely

CEOs WHO MOST EXCEEDED "RATIONAL" PAY AMONG 170 CHIEF EXECUTIVES

	COMPANY	CEO	PAY... ACTUAL... $000	Rank	"RATIONAL" $000	PERCENT HIGHER	
1	BEAR STEARNS COS.	Alan C. Greenberg	$5,712	2	$1,206	373%	It's hard to call Ace overpaid. His bonus plan was clearly detailed when the firm went public in 1985.
2	BALLY MANUFACTURING	Robert E. Mullane	$2,549	11	$697	266%	Though Bally is a subpar performer, Mullane's pay package is lavish, with loads of restricted stock.
3	WARNER COMMUNICATIONS	Steven J. Ross	$4,066	5	$1,187	243%	Massive pay for middling performance (1986 figures). Ross may also rack up huge future compensation.
4	WALT DISNEY	Michael D. Eisner	$6,732	1	$2,489	170%	You can argue whether Eisner is worth so much, but he has turned in a star performance at Disney.
5	GEORGIA-PACIFIC	T. Marshall Hahn Jr.	$2,623	10	$1,119	134%	Hahn's pay included a $1.4 million bonus. The company is an average performer.
6	GULF & WESTERN	Martin S. Davis	$2,770	8	$1,307	112%	Davis has wrought an impressive turnaround at G&W. Last year's results were fine.
7	ANHEUSER-BUSCH	August A. Busch III	$2,764	9	$1,315	110%	Busch brought shareholders a 30% total return last year. They're probably not griping.
8	ITT	Rand V. Araskog	$2,779	7	$1,389	100%	Impressive profit performance, and a big improvement over 1986.
9	CHAMPION INTERNATIONAL	Andrew C. Sigler	$2,062	20	$1,031	100%	Sigler's superstar pay is hard to figure. The company is an average performer and has been for years.
10	GENERAL ELECTRIC	John F. Welch Jr.	$4,172	4	$2,155	94%	A solid performance by Welch, who increased profits 17% in this vastly diversified company.

FORTUNE's analysis showed that the factors you would expect to determine CEO pay—company size and performance, business risk, the CEO's tenure, and others—explain only part of it. Our computation of "rational" pay, explained in the article, is what a CEO's pay would be if it reflected

ILLUSTRATIONS BY JOHN PIRMAN

to have done so in the previous few years or to do so again soon. An ideal but hugely laborious way to smooth out these sharp ups and downs would be to compute each CEO's average gain on exercised stock options, restricted stock grants, and long-term incentive plans over, say, the past five years. Instead, the study arbitrarily includes 20% of such gains for 1987 (unless the proxy gives more detailed data).

CEO pay isn't completely nutty. The study found that it varies in line with a number of seemingly rational factors:

▶ **Company size.** A bigger business is probably more difficult and a greater responsibility to run than a small one. The study gauged size by an index combining sales, assets, shareholders' equity, and number of employees. Other things being equal, a 10% increase in company size will bring the CEO a 2% increase in pay.

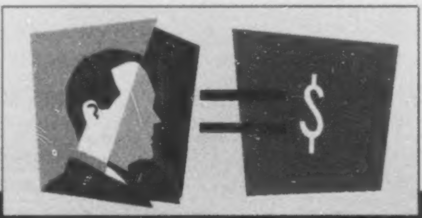
▶ **Company Performance.** This ought to be the big one, and it is. We constructed a Performance IQ composed of 1987 profits, return on equity (1987 and five-year averages), the change between the 1987 and five-year average ROEs, ratio of market value to book value (1987 and five-year averages), and total return to investors (stock price change plus dividends) for the past five years. As with intelligence testing, the average company in the group had a Performance IQ of 100. Merck is first in the class, with a Performance IQ of 125, and BankAmerica is the dunce, with 76 (see FORTUNE Book Excerpt). Increasing a company's Performance IQ from 100 to 110—no easy feat—brings a 31% increase in CEO pay.

▶ **Company risk.** Running First Boston is a lot riskier than running Nynex, so it ought to pay more. It does. In measuring risk by beta value, a gauge of stock price volatility, it turns out that taking on more risk and moving a company's beta from 1.00 to 1.10 will trigger a 5% increase in pay.

▶ **Government regulation.** Transportation companies, which were regulated until relatively recently, and utilities, which remain heavily regulated, pay the boss less than other companies. The gap is 20% for transport outfits, 24% for utilities.

▶ **Tenure.** The longer you work for a company, the more you earn, right? Not if you're the CEO. Other things being equal, a CEO with 30 years of service earns 6% less than one with 20 years. That's not so surprising when you think about it: Companies that hire from the outside usually have to pay through the nose. So the less service a CEO has with his company, the more he tends to earn.

▶ **Location.** If a company is headquartered in or around New York City, the CEO receives 7% more pay than average. In Los Angeles it's 10%. Those cities are among the most expensive in which to live in the U.S. and are headquarters for many of the highest-paid CEOs.



It makes sense that these factors would influence CEO pay. But it makes sense that a number of others would too—and they don't. Consider:

▶ **Directors.** Pay has nothing to do with whether the board is primarily insiders or outsiders, nor does it matter what proportion of shares outstanding is owned by the outside directors or by the outside directors who serve on the board's compensation committee.

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▶ **Ownership.** It doesn't matter how much stock the CEO owns in the company.

▶ **Age.** Neither the CEO's age nor the number of years he has served as CEO has any impact on pay.

What's the bottom line? If you test for the influence of all these factors on CEO pay through the statistical technique of multiple regression analysis, it turns out that they explain only about 39% of the variation. Since these factors constitute the overwhelming majority of supposedly rational influences on

CEOs WHO LAGGED FURTHEST BEHIND "RATIONAL" PAY AMONG 170 CHIEF EXECUTIVES

	COMPANY	CEO	PAY... ACTUAL... $000	Rank	"RATIONAL" $000	PERCENT LOWER	
161	DIGITAL EQUIPMENT	**Kenneth H. Olsen**	$906	124	$1,566	−42%	Olsen is an emphatically unostentatious New Englander who also owns a lot of DEC stock.
162	MERCK	**P. Roy Vagelos**	$1,372	55	$2,455	−45%	America's most admired corporation had another excellent year. The top performer in this study.
163	CATERPILLAR	**George A. Schaefer**	$532	159	$998	−47%	After several unimpressive years, Cat's profits and stock price took off. Schaefer's pay hasn't kept pace.
164	TEXAS AIR	**Francisco A. Lorenzo**	$505	163	$964	−48%	Data are for 1986; Texas Air did okay and Lorenzo's pay was low, perhaps to avoid a union outcry.
165	SUPER VALU STORES	**Michael W. Wright**	$551	157	$1,053	−48%	Data are for 1986; the largest diversified service company turned in a fine performance.
166	IBM	**John F. Akers**	$912	122	$2,152	−58%	IBM's performance was only par, but Akers's pay still doesn't reflect the company's colossal size.
167	LUCKY STORES	**John M. Lillie**	$572	153	$1,397	−59%	Data are for 1986, when Lucky, as usual, had a breathtaking return on shareholders' equity—83%.
168	SYSCO	**John F. Woodhouse**	$332	168	$843	−61%	This Houston food distributor performed decently but paid CEO Woodhouse only modestly.
169	AMERADA HESS	**Leon Hess**	$200	170	$721	−72%	Leon Hess earns less than any other CEO in this study, but he is a major shareholder in his company.
170	LOEWS	**Laurence A. Tisch**	$289	169	$1,754	−84%	Your best-buy CEO. Like Hess, Tisch owns a considerable amount of stock in his company.

just these factors. Whether a CEO who made more than "rational" pay is truly overpaid remains open to question. There may be extenuating circumstances—for example, a chief executive may receive a premium to take over a troubled company. Figures are for 1987 unless otherwise noted.

COMPENSATION

CEO pay, that is a sobering statistic. It means that most of the vast differences in CEO pay cannot be logically accounted for.

The "rational" pay figures in the accompanying tables are derived from the regression analysis. They show what each CEO's pay would be if it reflected only the influence of the factors discussed above, the factors that rationally ought to influence pay. Note that the "rational" figure reflects these influences to the extent they operated in the group overall—and whether that is too much or too little influence in any specific case is open to argument. For example, while a ten-point improvement in Performance IQ raises pay 31%, a board of directors might argue persuasively that in a particularly difficult situation, such a performance boost is worth far more, and they might pay their CEO accordingly. In other words, just because a CEO is making more than "rational" pay, he isn't necessarily *over*paid.

ANDY FREEBERG

IBM's
JOHN AKERS
Paid as if IBM were just large, not huge

The big mystery is the remaining 61% of pay variation, the part that is not due to company size, company performance, business risk, or any other factor considered. It is surely true, as some scholars argue, that CEO pay makes more sense if you include the changing value of the chief's holdings of company stock; if his company does well, his stock does well. But these are unrealized gains and losses, and in any case certainly would not explain anything like that 61%. So what's going on? Is the most popular reference work in the compensation committee's meeting room a table of random numbers?

Several structural elements underlie the considerable chaos that seems to operate in the market for CEO services. Remarkably, the sellers of these services, the chief executives themselves, are often not well informed. Many executives simply don't understand the total value of their pay packages. To be sure, they can rattle off their salary and bonus numbers with celerity, but they slow to a crawl when it comes to valuing options, restricted stock, performance units, perquisites, and fringe benefits.

The buyers are not much better off. Executive pay plans can be highly complex, so

REPORTER ASSOCIATE *David Kirkpatrick*

CEOs WHO MADE MORE THAN "RATIONAL" PAY CONTINUED

	COMPANY	CEO	PAY... ACTUAL... $000	Rank	"RATIONAL" $000	% HIGHER
11	TEXTRON	B. F. Dolan	$2,102	18	$1,130	86%
12	TRW	Ruben F. Mettler	$1,767	31	$999	77%
13	USX	David M. Roderick	$1,861	27	$1,088	71%
14	KRAFT	John M. Richman	$1,858	28	$1,098	69%
15	COCA-COLA	Roberto C. Goizueta	$2,317	13	$1,408	65%
16	NAT'L MEDICAL ENTERPRISES	Richard K. Eamer	$1,740	32	$1,067	63%
17	UNISYS	W. Michael Blumenthal	$1,902	26	$1,179	61%
18	PFIZER	Edmund T. Pratt Jr.	$2,212	15	$1,387	60%
19	W.R. GRACE	J. Peter Grace	$1,488	47	$948	57%
20	OCCIDENTAL PETROLEUM*	Armand Hammer	$1,595	38	$1,024	56%
21	CHRYSLER	Lee Iacocca	$4,811	3	$3,115	54%
22	AVNET	Anthony R. Hamilton	$1,052	93	$702	50%
23	TESORO PETROLEUM	Robert V. West Jr.	$651	147	$436	49%
24	SARA LEE	John H. Bryan Jr.	$2,078	19	$1,402	48%
25	ALCO STANDARD	Ray B. Mundt	$1,216	75	$833	46%
26	BELL ATLANTIC	Thomas E. Bolger	$1,359	56	$933	46%
27	AMERICAN CYANAMID	George J. Sella Jr.	$1,502	44	$1,033	45%
28	EMERSON ELECTRIC	Charles F. Knight	$1,654	35	$1,143	45%
29	GREYHOUND	John W. Teets	$1,411	51	$998	41%
30	NORFOLK SOUTHERN*	Robert B. Claytor	$1,105	89	$793	39%
31	E.I. DU PONT DE NEMOURS	Richard E. Heckert	$2,385	12	$1,717	39%
32	AMR*	Robert L. Crandall	$1,182	79	$861	37%
33	HOLIDAY	Michael D. Rose	$1,032	98	$753	37%
34	BANKERS TRUST N.Y. CORP.	Charles S. Sanford Jr.	$1,948	24	$1,457	34%
35	CSX	Hays T. Watkins	$1,202	78	$902	33%
36	WESTINGHOUSE ELECTRIC	Douglas D. Danforth	$1,944	25	$1,478	32%
37	NATIONAL INTERGROUP	Howard M. Love	$711	143	$541	31%
38	GTE	Theodore F. Brophy	$1,212	77	$941	29%
39	MERRILL LYNCH	William A. Schreyer	$1,959	22	$1,521	29%
40	RALSTON PURINA	William P. Stiritz	$2,060	21	$1,620	27%
41	BURLINGTON NORTHERN	Richard M. Bressler	$1,389	54	$1,103	26%
42	GENERAL MOTORS	Roger B. Smith	$2,115	17	$1,687	25%
43	PROCTER & GAMBLE	John G. Smale	$1,283	66	$1,041	23%
44	KIMBERLY-CLARK	Darwin E. Smith	$1,464	50	$1,196	22%
45	FORD MOTOR	Donald E. Petersen	$3,867	6	$3,185	21%
46	SOUTHWESTERN BELL	Zane E. Barnes	$1,303	64	$1,076	21%
47	BERGEN BRUNSWIG	Emil P. Martini Jr.	$738	137	$613	20%
48	AMOCO	Richard M. Morrow	$1,267	67	$1,058	20%
49	FIRST BOSTON	Peter T. Buchanan	$2,160	16	$1,804	20%
50	MOBIL	Allen E. Murray	$1,586	39	$1,325	20%
51	GENERAL MILLS	H. B. Atwater Jr.	$1,319	61	$1,108	19%
52	UNOCAL	Fred L. Hartley	$977	107	$839	19%
53	H.J. HEINZ	Anthony J.F. O'Reilly	$1,470	49	$1,245	18%
54	CASTLE & COOKE	David H. Murdock	$1,227	74	$1,048	17%
55	CIGNA	Robert D. Kilpatrick	$1,532	43	$1,324	16%
56	MCDONNELL DOUGLAS	Sanford M. McDonnell	$1,018	102	$888	15%
57	WETTERAU	Ted C. Wetterau	$820	132	$719	14%
58	ROCKWELL INTERNATIONAL	Robert Anderson	$1,611	37	$1,421	13%
59	AMER. INFO. TECHNOLOGY	William L. Weiss	$1,304	63	$1,158	13%
60	J.C. PENNEY*	William R. Howell	$1,733	33	$1,564	11%

*1986 data

compensation committee members have a demanding job. But it is only a part-time job, and no company pays them enough to motivate them to spend very many hours thinking about the company's pay policies.

Many compensation committee members have selective memories. With straight faces they'll point out how they are aiming for pay within industry norms and how they have achieved what they set out to accomplish through a combination of regularly granted compensation elements. But they will forget that four years ago, in a fit of hero worship, they gave the CEO a "one-time," "out-of-sequence," stock option grant for 500,000 shares and that, two years ago, they gave him a "special" grant of 75,000 restricted shares.

Compensation committees have strong—and misguided—incentives to grant stock options. Under current rules of accounting, the cost of options offered at market prices never hits the income statement. Apparently by magic, a company can deliver millions of dollars to an executive and not diminish reported profits by a nickel. It shouldn't work that way, of course. Once the CEO exercises his options, those shares end up in the open market, drawing dividends and diluting the ownership of all other shareholders. Yet many corporate directors have come to believe that if options don't reduce reported earnings, they don't cost anything. Everyone knows what happens to usage when resources are underpriced.

Another factor pushing up CEO pay is pride, a we're-as-good-as-anyone attitude. If you survey compensation committees on pay policy, you will typically find that about one-third of major companies aim to pay their CEOs at 75th-percentile levels of compensation, the remaining two-thirds are aiming for the median or slightly above it, and precisely no companies say they are aiming for less than the median. Is it any wonder that pay levels move up smartly year after year?

BONNIE SCHIFFMAN—ONYX

Disney's
MICHAEL EISNER
Terrific performance, but is it worth so much?

Most of today's CEOs also have demographics on their side. The average CEO among the 170 studied was born in 1929, just before the Depression birth dearth. This restricted supply of executive talent is especially acute considering that women of that

	COMPANY	CEO	PAY... ACTUAL... $000	Rank	"RATIONAL" $000	% HIGHER
61	HONEYWELL	Edson W. Spencer	$1,046	95	$949	10%
62	RJR NABISCO	F. Ross Johnson	$1,952	23	$1,776	10%
63	GOODYEAR TIRE & RUBBER	Robert E. Mercer	$1,252	71	$1,149	9%
64	CITICORP	John S. Reed	$1,786	30	$1,652	8%
65	NORTHROP	Thomas V. Jones	$1,133	84	$1,050	8%
66	BELLSOUTH	John L. Clendenin	$1,147	83	$1,071	7%
67	MAXUS ENERGY*	William Bricker	$695	144	$656	6%
68	ASHLAND OIL	John R. Hall	$996	108	$941	6%
69	ATLANTIC RICHFIELD	Lowdrick M. Cook	$1,492	46	$1,413	6%
70	DELTA AIR LINES	David C. Garrett Jr.	$595	151	$568	5%
71	ARCHER DANIELS MIDLAND	Dwayne O. Andreas	$977	110	$936	4%
72	CONAGRA	Charles M. Harper	$1,284	65	$1,245	3%
73	RAYTHEON	Thomas L. Phillips	$1,026	99	$996	3%
74	TENNECO	James L. Ketelsen	$1,085	92	$1,054	3%
75	COLGATE-PALMOLIVE	Reuben Mark	$1,087	91	$1,057	3%
76	IU INTERNATIONAL*	John G. Christy	$900	125	$876	3%
77	NCR	Charles E. Exley Jr.	$1,581	40	$1,548	2%
78	DOW CHEMICAL	Paul F. Oreffice	$1,796	29	$1,759	2%
79	SUN	Robert McClements Jr.	$923	120	$907	2%
80	NYNEX	Delbert C. Staley	$1,101	90	$1,083	2%
81	HALLIBURTON*	Thomas H. Cruikshank	$780	135	$769	1%
82	PEPSICO	D. Wayne Calloway	$1,730	34	$1,707	1%
83	ENSERCH	William C. McCord	$718	142	$711	1%
CEOs WHO MADE LESS THAN "RATIONAL" PAY						**% LOWER**
84	KROGER	Lyle J. Everingham	$1,117	87	$1,121	−1%
85	HEWLETT-PACKARD	John A. Young	$1,256	70	$1,266	−1%
86	MONSANTO	Richard J. Mahoney	$1,005	104	$1,030	−2%
87	TEXACO	James W. Kinnear III	$793	134	$813	−3%
88	HUMANA	David A. Jones	$867	128	$891	−3%
89	AMERICAN HOME PRODUCTS	John R. Stafford	$1,349	59	$1,391	−3%
90	BANKAMERICA CORP.	A. W. Clausen	$775	136	$800	−3%
91	BRISTOL-MYERS	Richard L. Gelb	$1,306	62	$1,357	−4%
92	PHILLIPS PETROLEUM	Cecil J. Silas	$729	139	$761	−4%
93	MCKESSON	Thomas W. Field Jr.	$953	116	$997	−4%
94	WASTE MANAGEMENT	Dean L. Buntrock	$1,482	48	$1,557	−5%
95	RYDER SYSTEM	M. Anthony Burns	$1,175	82	$1,235	−5%
96	NORTH AMERICAN PHILIPS*	Cees Bruynes	$858	129	$902	−5%
97	ALLIED-SIGNAL	Edward L. Hennessy Jr.	$1,405	52	$1,503	−7%
98	CHASE MANHATTAN CORP.	Willard C. Butcher	$1,251	72	$1,339	−7%
99	JOHNSON & JOHNSON	James E. Burke	$1,396	53	$1,501	−7%
100	GENERAL DYNAMICS	Stanley C. Pace	$1,213	76	$1,309	−7%
101	MANUF. HANOVER CORP.	John F. McGillicuddy	$874	127	$951	−8%
102	UNION CARBIDE	Robert D. Kennedy	$1,021	101	$1,116	−8%
103	BORDEN	Romeo John Ventres	$1,235	73	$1,352	−9%
104	CHEVRON	George M. Keller	$1,005	105	$1,115	−10%
105	AMERICAN TEL. & TEL.	James E. Olson	$1,354	57	$1,519	−11%
106	FIRST CHICAGO CORP.	Barry F. Sullivan	$884	126	$999	−12%
107	WEYERHAEUSER	George H. Weyerhaeuser	$928	119	$1,056	−12%
108	EASTMAN KODAK	Colby H. Chandler	$1,048	94	$1,194	−12%
109	FIRST INTERSTATE BANCORP	Joseph J. Pinola	$1,127	85	$1,287	−12%
110	GENUINE PARTS	Wilton D. Looney	$655	146	$750	−13%

*1986 data

generation were virtually shut out of the boardroom. Interesting implication: When the surge of baby-boomers, including many women, reaches the top of the corporate ladder, executive pay increases could slow way down or even reverse.

It may happen none too soon. CEO pay in general has increased at a 12.2% compound annual rate over the past decade, double the 6.1% rate for U.S. production workers, according to Sibson & Co., a human resource consulting firm. Several considerations suggest that it's time for those sizzling advances to simmer down.

It is almost a cliché to note that Japanese CEOs are paid much less than their American counterparts, yet deliver superior performance. Yes, they receive considerable compensation in the form of perks, and they view work and pay from an utterly different cultural perspective. But the contrasts with U.S. pay levels are too great to be dismissed that easily (see box, page 78).

JONATHAN LEVINE—ONYX

Loews'
LAURENCE TISCH
A real owner-manager—and your best-buy CEO

The old argument that you can double the CEO's pay and it will be lost in the rounding of earnings is no longer credible. The number is so large these days that doubling it will not get lost even in IBM's earnings. In addition, the CEO's pay level is like a magnet: It draws up all executives' pay. When that happens, the only way the doubling will get lost in the rounding is when you round to the nearest billion.

The claim that you have to pay the CEO a lot of money to yield him a few extra dollars of after-tax income is similarly invalid. As executive pay has headed for the stratosphere, individual tax rates have headed for the basement—down this year to a 28% top marginal rate for people earning over $150,000.

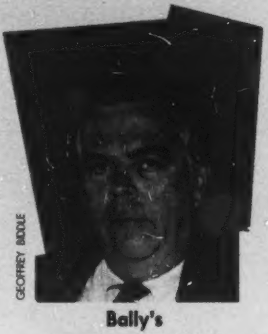
Although the new tax law has helped executives, it has hurt shareholders. Until tax reform, the payment of $100 to an executive cost the shareholders only $54, since the corporate tax rate was 46% and the payment could be deducted on the company's tax return. Now it costs the shareholders $66, because the new corporate tax rate has been lowered to 34%.

Some would even say that CEO pay at its most stupendous is just wrong. Plato, apparently the world's first compensation

	COMPANY	CEO	PAY... ACTUAL... $000	Rank	"RATIONAL" $000	% LOWER
111	CAMPBELL SOUP	R. Gordon McGovern	$849	130	$973	−13%
112	INTERNATIONAL PAPER	John A. Georges	$962	113	$1,121	−14%
113	ABBOTT LABORATORIES	Robert A. Schoellhorn	$1,537	42	$1,793	−14%
114	SUBARU OF AMERICA	Harvey H. Lamm	$510	162	$596	−14%
115	FLEMING COS.	Richmond D. Harrison	$687	145	$804	−15%
116	HOUSEHOLD INTERNATIONAL	Donald C. Clark	$981	109	$1,166	−16%
117	EXXON	Lawrence G. Rawl	$1,648	36	$1,964	−16%
118	AMERICAN EXPRESS	James D. Robinson III	$2,224	14	$2,654	−16%
119	SALOMON	John H. Gutfreund	$1,340	60	$1,600	−16%
120	AETNA LIFE & CASUALTY	James T. Lynn	$1,351	58	$1,621	−17%
121	XEROX	David T. Kearns	$1,263	68	$1,521	−17%
122	PACIFIC TELESIS GROUP	Donald E. Guinn	$817	133	$985	−17%
123	SANTA FE SOUTHERN PACIFIC	Robert D. Krebs	$955	115	$1,155	−17%
124	MINNESOTA MINING & MFG.	Allen F. Jacobsen	$956	114	$1,160	−18%
125	CPC INTERNATIONAL	James R. Eiszner	$963	112	$1,173	−18%
126	US WEST*	Jack A. MacAllister	$724	140	$894	−19%
127	J. P. MORGAN & CO.	Lewis T. Preston	$1,259	69	$1,556	−19%
128	UNITED TECHNOLOGIES	Robert F. Daniell	$1,114	88	$1,390	−20%
129	TRAVELERS CORP.	Edward H. Budd	$939	117	$1,207	−22%
130	CAPITAL CITIES COMM./ABC	Thomas S. Murphy	$923	121	$1,193	−23%
131	PPG INDUSTRIES	Vincent A. Sarni	$1,003	106	$1,300	−23%
132	AMERICAN BRANDS	William J. Alley	$1,006	103	$1,315	−24%
133	AMERICAN STORES*	L. S. Skaggs	$1,044	96	$1,381	−24%
134	SEARS ROEBUCK	Edward A. Brennan	$1,539	41	$2,037	−24%
135	DUN & BRADSTREET*	Charles W. Moritz	$1,127	86	$1,497	−25%
136	SECURITY PACIFIC CORP.	Richard J. Flamson III	$1,180	81	$1,574	−25%
137	PACIFIC GAS & ELECTRIC	Richard A. Clarke	$538	158	$727	−26%
138	DAYTON HUDSON*	Kenneth A. Macke	$1,023	100	$1,387	−26%
139	PHILIP MORRIS	Hamish Maxwell	$1,494	45	$2,046	−27%
140	HOSPITAL CORP. OF AMERICA	Thomas F. Frist Jr.	$628	149	$862	−27%
141	MOTOROLA	William J. Weisz	$967	111	$1,328	−27%
142	SOUTHERN	Edward L. Addison	$554	156	$768	−28%
143	AMERICAN MEDICAL INT'L	Walter L. Weisman	$650	148	$908	−28%
144	CBS	Laurence A. Tisch	$1,181	80	$1,667	−29%
145	LOCKHEED	Lawrence O. Kitchen	$929	118	$1,330	−30%
146	MORRISON KNUDSEN	William J. Deasy	$426	167	$615	−31%
147	CHEMICAL NEW YORK CORP.*	Walter V. Shipley	$1,034	97	$1,501	−31%
148	ALLEGIS*	Richard J. Ferris	$583	152	$849	−31%
149	DRESSER INDUSTRIES	John J. Murphy	$511	161	$750	−32%
150	PILLSBURY	John M. Stafford	$831	131	$1,220	−32%
151	ARMCO	Robert E. Boni	$557	155	$825	−32%
152	COASTAL	Oscar S. Wyatt Jr.	$912	123	$1,369	−33%
153	BETHLEHEM STEEL	Walter F. Williams	$500	164	$766	−35%
154	TEXAS INSTRUMENTS	Jerry R. Junkins	$718	141	$1,100	−35%
155	DEERE	Robert A. Hanson	$481	165	$749	−36%
156	BEVERLY ENTERPRISES	Robert Van Tuyle	$622	150	$994	−37%
157	SUPER FOOD SERVICES	Jack Twyman	$528	160	$849	−38%
158	BOEING	Frank Shrontz	$737	138	$1,193	−38%
159	MCA	Lew R. Wasserman	$559	154	$908	−38%
160	FLUOR	David S. Tappan Jr.	$470	166	$779	−40%

161-170 ARE LISTED ON PAGE 69.

*1986 data



GEOFFREY BIDDLE

Bally's
ROBERT MULLANE
Munificent pay, but an uninspiring performance

consultant, suggested that the highest-paid person in the community should earn no more than five times the lowest. Management writer Peter Drucker relates approvingly that J. P. Morgan raised that ratio to around 20 and maintained it in his enterprises. There is nothing scientific about those numbers, but they reflect a society's instinctive sense of fairness. Many companies are probably within Morgan's guideline—check the table of CEOs Who Lagged Furthest Behind "Rational" Pay—but many others are not.

Critics and supporters of CEO pay practices agree on the principle of pay for performance. That principle contains plenty of room for argument, but when the chief is turning in stellar results, he can take home an awful lot before anyone gripes.

While everyone can rally round pay for performance, in a rational world that implies risk taking: The CEO's fortunes should rise and fall with his company's. But at many corporations the board has adopted only half the principle. The CEO gets a terrific reward when the company does well—pay for performance, see?—but he still gets a pretty good reward when it does badly.

Boards remove risk in several ways. Some executives receive base salaries of over $1 million. In addition, much of what is called an annual bonus is nothing more than base salary in drag. If it were not, the relationship between performance and pay would have been much stronger than it was in FORTUNE's study. The CEO with a $1 million salary may also receive a $700,000 bonus. If, say, $600,000 of that bonus is not going to vary with performance, then the CEO's real salary is $1.6 million.

WILL MOSGROVE

Lucky Stores'
JOHN LILLIE
Superb accomplishment at a bargain price

Companies trumpet stock options as the way to link executive interest with shareholder interest. Yet some of these same companies think nothing of letting their executives swap old option shares for new, lower-priced shares when the market takes it on the chin. So much for the linkage between executives and shareholders.

A number of companies have decided to abandon stock options in favor of restricted stock grants. These are free shares that go to the CEO if he stays with the company for a certain number of years. They have legitimate purposes: holding the CEO and motivating him to increase the value of the shares. But they do not carry a lot of risk. Why sweat out having to achieve an increase in stock price before you receive any reward? Why suffer the criticism of swapping option shares when the market slumps? Instead, just give the executive the shares and the dividends—for free—and require him only to breathe in and out (on the company payroll) as the quid pro quo.

A few companies give their executives a trendy new benefit called Stock Depreciation Rights. An executive who is subject to the insider trading provisions, which require him to hold stock for six months, exercises a stock option and begins the holding period. If the share price six months after exercise is higher than the price at exercise, the executive keeps the gain. But if it is lower, he can cash in his Stock Depreciation Rights. Each of these beauties gives him a cash payment to make up the difference. How about that for shareholder linkage? A plummeting share price ends up increasing the company's cost and its outlay of cash.

CEOs who have low-risk pay packages and who hope to be heroes don't understand what makes a hero. General Patton rode with his tanks into the thick of battle. Lee Iacocca said he would accept only $1 a year and took the risk that his pay would never rise above that. Both triumphed, but that's not the point. Had Patton failed, he would have died, and had Ia-

IN SEARCH OF JOHN REED'S PAY

DEBORAH FEINGOLD—OUTLINE

Citicorp's
JOHN REED
Not such a bad year—if you look hard enough

■ Here's what you'll need to find out how much John Reed made last year: a Citicorp proxy statement, a calculator, plenty of coffee, and a lot of time.

Start on page 25 of the proxy, where a table of cash compensation reports that CEO Reed earned $840,300. A footnote indicates that the sum doesn't include any cash bonus earned under the company's Executive Incentive Compensation Plan. Read 13 further pages of eye-glazing detail on various compensation plans. Then, in a table reporting annual bonuses, you will find that Reed received no bonus at all for 1987. A footnote explains: "No executive officer who is a member of the Policy Committee received an award under the Executive Incentive Compensation Plan relating to 1987, because of the loss reported for the year." The loss was $1.1 billion, caused by a provision for possible losses on Third World loans.

Ah, you think, a no-fooling, pay-for-performance company. But the very next sentence in the footnote discloses that Reed got 25,000 restricted shares of company stock during 1987. At Citicorp's 1987 quarterly average stock price of $27.36, this grant is worth about $684,000.

Read on. Soon the proxy begins describing a new stock incentive plan needing shareholder approval. You wouldn't expect this section to describe action already taken—but on page 42 nestles a disclosure that in January the compensation committee granted Reed a further 60,000 restricted shares. Value: $1,155,000.

Altogether not such a bad year for Reed, but finding that out requires intensive sleuthing.

It needn't be so. Check Chevron's 1988 proxy. The main remuneration table lays it all out, with separate columns for salaries and fees, deferred compensation, incentive cash awards, incentive stock unit awards, and converted performance unit awards (basically long-term cash incentives). If the object is to communicate with shareholders, this is the way to do it. **—G.S.C.**

cocca failed, he would have died from a compensation standpoint. That's what makes a hero. You can't be a hero when you walk a high wire over Niagara Falls but keep a safety net six inches underneath, stocked with your favorite beverages.

A couple of specific actions could help restore rationality to CEO pay:

▶ **Options.** Accounting rules should impose charges to earnings for stock options and other stock-related compensation devices. That would make clear what the options cost the shareholders. The Financial Accounting Standards Board is studying the subject.

▶ **Disclosure.** The SEC should require full and uniform disclosure in proxy statements of executive compensation payments. Current requirements are far too lax.

Perhaps relatively few companies egregiously overpay their CEOs. But if their directors don't shape up, their sins could be visited upon all executives. In a deep way, Plato and J. P. Morgan were right: No society is going to tolerate awesome after-tax pay differentials for long unless there is good reason for them to exist. And performance is about the only good reason that comes to mind.

HARRY BENSON

Warner's
STEVEN ROSS
His company does fine, but he does much better

The threat of government action on CEO pay is not all that remote. The government has at least three weapons with which it can discipline executives who are perceived as overpaid, and it has recently unsheathed two of them against golden parachutes: an increase in the executive's tax rate (20 percentage points on any parachute payment exceeding three years' pay) and a reduction of the company's tax deduction for the expense. The third weapon—outright pay controls—was wielded as recently as 1972 by President Nixon (though for reasons unrelated to fairness of pay levels).

The government is in the business of solving problems that can't be solved any other way. If some companies can't get their acts together to discipline executive pay abusers, then we may have legislation to curb executive pay. Sadly, if that happens, the innocent majority will suffer along with the guilty minority.

GRAEF S. CRYSTAL is a professor at the business school of the University of California at Berkeley. He is widely considered the dean of U.S. compensation consultants.

ABROAD, IT'S ANOTHER WORLD

■ And how much do CEOs make outside the U.S.? Less, generally much less. But as business globalizes, the discrepancies may soon start to narrow.

The CEO of a billion-dollar-a-year U.S. corporation makes $983,000 on average, including all forms of direct pay—salary, bonus, and incentives—according to a survey conducted for FORTUNE by TPF&C, a New York–based benefits and compensation consulting firm. The chieftain of a French company of comparable size comes in a distant second with $577,000, followed by his Swiss counterpart at $468,000, a typical West German at $403,000, a British boss at $342,000, and the Japanese CEO at just $330,000. All pay totals were converted into dollars at current exchange rates.

The major element of the disparity is performance incentives, such as stock options. CEOs outside the U.S. don't get many. Such incentives constitute 60% of total cash compensation for chief executives of the biggest U.S. companies, according to TPF&C, but in West Germany and Japan they add only about 12%. Even in those rare years when performance incentives don't kick in, U.S. chiefs remain the superchiefs. In a recent study, the Wyatt Co., an employee benefits and compensation consulting firm, looked just at base pay and normal bonuses and found that Japanese and German chief executives net only about 65% of what their well-heeled American brethren take home, after the effects of higher taxes and costs of living in those countries are figured in. Elsewhere the headman's buying power is even worse.

Certain perquisites offered outside the U.S. balance the scales a bit. The U.S. is the only one of 20 major countries surveyed by TPF&C where a car (often with a driver) is not usually provided to the CEO of a $100-million-a-year company. And in many countries with confiscatory tax policies, companies offer tax-favored perks such as club memberships, augmented pensions, and entertainment and housing allowances. But, says Michael Emig, a principal with Wyatt Co., "the order of magnitude of these perks is nothing compared with how much wealth U.S. executives can accumulate over a period of time."

Americans hold a distinctive view of the CEO's relation to the rest of a company's employees. Most European and Japanese managers feel an organization suffers when the CEO receives an astronomical multiple of the typical employee's check. A recent study found that a European CEO's pay was generally six to eight times that of an entry-level professional. In the U.S. the ratio was 14. "There's more of a consensus approach to managing in a country like Germany," says Brian Brooks, an international compensation consultant with TPF&C. "When you put workers on the board, as they often do, that creates pressure to keep executive pay down."

The American obsession with superstars also helps drive up the chief's pay. Says TPF&C's David Swinford: "In Europe and Japan they still reward longevity and loyalty by promoting from within, whereas we find a home-run hitter and pay to get him as a free agent." Adds Lance Berger of Philadelphia's Hay Group: "Each time a CEO changes jobs, it cranks the whole market up a notch."

That constant cranking in the U.S. is starting to ratchet up pay around the world. The market for CEOs, along with everything else, is becoming increasingly international, and it is not unusual these days for the CEO of a big, recently acquired American subsidiary of a European or Japanese company to be making up to twice as much as his boss overseas. That may be one reason Britain's Lord Hanson, chairman and CEO of the acquisitive Hanson PLC, recently wrote in his company's annual report that British executives of multinationals should receive "global" (read "U.S.") pay rates. Lord Hanson's board practices what he preaches. His pay last year was nearly £1.3 million ($2.4 million), enough to place him well up in America's major leagues.—**David Kirkpatrick**

THE ECONOMY/FORTUNE FORECAST

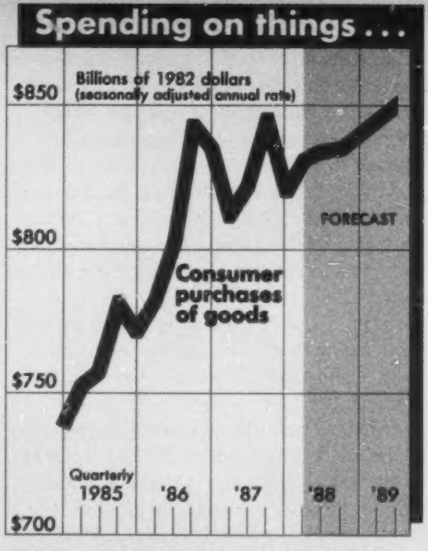
NOW THE WORRY IS TOO MUCH GROWTH

Businesses could get carried away with capital spending plans, producing a boom-and-bust cycle. They should follow consumers, who are lightening up on outlays. ■ *by Vivian Brownstein*

IS THE long expansion of the 1980s about to blow its cool? Growth is unexpectedly strong, unemployment is down to a 14-year low, and long-term interest rates reflect worries about rising inflation. It all seems eerily like last fall, when the economy was saved from overheating only by the cold shower of the stock market crash.

MICHAEL L. ABRAMSON

The risks to the recovery have indeed shifted from weakness to an excess of strength, as the Federal Reserve tacitly acknowledged when it recently nudged up short-term interest rates, triggering an increase in the prime bank rate from 8.5% to 9%. Inflation will rise—FORTUNE expects it to be running at an annual rate of about 5% by year's end. But do not rush to batten down for a classic boom-and-bust climax.



Volatile car sales can't mask the trend: Outlays for goods other than food are growing more slowly. Home electronics, such as these big-screen TVs, were among the few recent gainers.

Take inventories, which added more than expected to GNP growth in the first quarter and heightened the sense that the economy was getting out of kilter. Aided by scanners, computerized ordering systems, and other technical marvels, businesses have been quick to correct every nascent inventory overhang since the recovery began. That has made for a choppy pattern of growth from quarter to quarter, one that has often obscured the underlying direction of the economy. It has also helped the expansion live to its ripe age. But when the rapid first-quarter buildup came hard on the fourth-quarter bulge, it appeared that business might be losing its grip. Not so, executives insist. Those who responded during April to FORTUNE's spring survey said they were basically comfortable with the size of their inventories (Fortune Forecast, May 23).

The most recent alarm about overheating comes from the sizzling pace of outlays for capital goods. Adjusted for inflation, spending on construction and equipment increased at an annual rate of 20% in the first quarter—vs. just 5% during 1987. If companies follow plans they reported to the Commerce Department recently, capital outlays will not add any more to GNP growth this year. The danger is that business will get overenthusiastic, as it has done before, and boost the planned spending out of proportion to real-world needs. Rising interest rates would not be likely to dissuade higher spending. But business has also shown that it can be realistic and trim its plans when the need for added capacity fails to materialize. And with a few exceptions, capacity use is not overly tight.

Consumers, far from catching spending fever, have made the shift to slower growth that is a critical part of the prescription for eventually solving America's trade woes. In fact, many consumer watchers are now more worried about too *little* spending. Outlays have slowed from the rapid inflation-adjusted averge annual increase of 4.5% during the first four years of the expansion.

After satisfying much of the demand they had postponed during the 1980-82 recession, consumers cut the growth in their spending to an average of 2% in 1987. Their purchases have grown more slowly for virtually all types of goods and many types of services, especially for recreation and personal care. There is little evidence of another consumption orgy in the making. The University of

Michigan's Survey Research Center and Sindlinger & Co., a consumer research firm, report only modest buying intentions for the coming six months or year.

Retail sales declined in April, the first drop in six months, at least partly because of an early Easter and bad weather. But the sales weakness was widespread, and probably not all related to special factors. Car sales are not likely to increase over the next year or so. To be sure, the buying comes in surges, dictated by the waves of incentives the automakers keep laying on. It's hard to sell a car these days without some gimmick or other. Foreign-car dealers, once aloof, have also been forced to offer rebates and low-cost financing to keep up with Detroit, especially now that their prices have been boosted by the fallen dollar.

But incentives can only borrow from future demand, making selling harder later on. According to Edward J. Sullivan, director of automotive consulting at the WEFA economic forecasting firm, the basic market for autos is growing by fewer than 100,000 units a year. WEFA forecasts that sales calculated on their trend estimates will be 11.2 million a year by 1995. Including the light pickup trucks and minivans that many people are buying instead of passenger cars, says Sullivan, 1995 sales could reach 16.1 million units. Whether you look at cars or all vehicles, recent sales have been on trend, running at a 10.8 million annual rate for cars and 4.8 million for light trucks.

. . . and how the hardgoods add up

Consumers' stock of durables as share of after-tax income

	AUTOS	FURNITURE	APPLIANCES	HOME ELECTRONICS
1950	17.4%	11.0%	3.6%	1.2%
1960	25.4%	11.9%	5.9%	2.3%
1970	25.8%	11.2%	6.2%	3.8%
1980	31.6%	12.2%	7.8%	6.5%
1986	37.4%	12.1%	8.1%	9.9%
1987 est.	38.5%	12.2%	8.6%	11.0%

Valued in constant 1982 prices, the electronics in the typical U.S. home have passed appliances and are rapidly getting to be worth as much as the furnishings. Cars are worth more than everything else combined.

FAMILIES are more likely to step up their purchases of other durable goods, such as furniture or electronic equipment. Measured as a share of after-tax income, the furniture that consumers have accumulated amounted to no more last year than it did in 1980 and was only 1.2 percentage points higher than in 1950 (see table). Given the number of new housing units built since 1980, more than ten million, furniture hardly looks oversold. The domestic supply of home electronics equipment is growing rapidly for different reasons: Irresistible new products, such as CD players, keep coming along. So the consumer electronics market will remain strong.

Soft goods are taking the hit. Apparel, in particular, is languishing: Adjusted for inflation, sales have fallen in three of the past six quarters, including a 4.8% rate of decline so far in 1988. So it's odd that the industry has recently raised many prices. Consumer economist Rosalind Wells, president of Wells & Associates, a consulting firm, doubts that the increases will stick. One reason the market is weak, she says, is that the arbiters of fashion miscalculated in pushing short hemlines. Instead of deciding whether to go long or short, women are just saying no. After the fashion stalemate ends, sales will pick up, but not enough to justify big price increases.

The recent rise in interest rates will not crimp consumer spending much—increases rarely do. Besides, thanks in part to tax reform, more and more people are forsaking traditional types of installment loans as the interest deduction evaporates and replacing them with mortgage borrowing, including revolving home equity loans. Such secured loans also tend to carry lower rates, meaning that average interest payments are probably *declining.*

Recently consumers have been able to lift spending modestly and still put more money away. From a low 2.8% of disposable income last summer, the savings rate bounced to 4.8% in the fourth quarter, partly in response to the scare produced by the stock market crash. Now savings appear to have settled at 4.5% of income, the same as in 1985, and a touch above what FORTUNE expected for this year.

Consumer saving, which once followed a fairly predictable pattern, is now a perpetual mystery to economists. It has become accepted wisdom that Americans are likely to salt away a smaller share of income than the 7% their parents and grandparents did. One putative reason: Pension plans and Social Security reduce the need to save for retirement.

BUT PART of the reported drop in savings reflects a change in business behavior. Drexel Burnham Lambert senior economist David W. Rolley estimates that corporations have reduced their contributions to pension plans by some $30 billion a year because the value of pension assets was growing much faster than liabilities. That lowered the savings rate by one point—but the change did not reflect any shift in the saving or spending habits of householders. Still, few experts claim to have the whole explanation for the savings slump. So the recent higher rate raises the nagging worry that consumers could just as unaccountably turn virtuous and rush back to saving, say, 6% of their income. That would demolish spending.

More likely, consumers will hold savings steady as income growth slows. The rapid expansion of jobs during the past half-year, a million more than expected, has helped total wage and salary incomes increase at better than a 6% annual rate—4% after inflation. But the rise in employment should slow by the second half, if not sooner. And inflation is likely to take a bigger bite out of earnings.

Disposable incomes were boosted by lower withholding rates at the start of the year, but higher Social Security taxes have more than offset the gain. Some analysts expect that refunds will be unusually large this year because of overwithholding in 1987. In any case, the major effects of tax reform on consumers' disposable income will be over by midyear. After that, real disposable income will advance at a rate of 2.5%, compared with 4.5% in the past six months.

It shouldn't take heroic efforts to keep the expansion safe from both excess and decline. Consumers are likely to provide a fairly sturdy spending foundation over the next year or so. They certainly look sanguine; the April confidence reading taken by the Conference Board is within 1.1 percentage points of the pre-crash September average. At the same time, consumers will not be spending enough to validate a capital goods superboom. What remains is for business planners to recognize the virtues of moderation. ■

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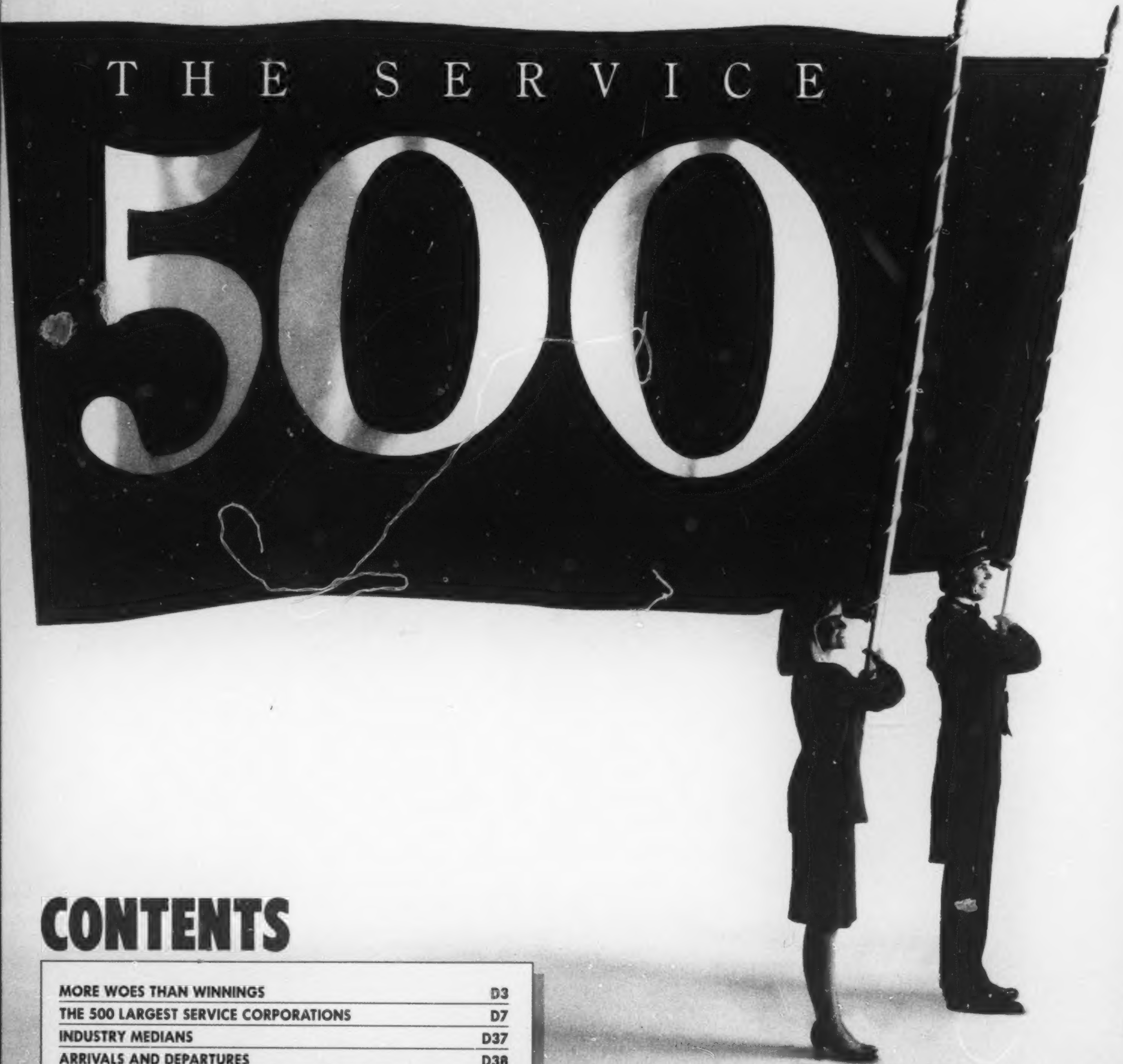

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THE FORTUNE
SERVICE 500

MORE WOES THAN WINNINGS

▼*Among the exceptional performers in an otherwise bleak service economy was Walt Disney. That's Minnie and Mickey at Florida's Magic Kingdom.*

SHOPPERS supplied most of the oomph in the service economy last year. By keeping cash registers ringing even after many economists thought they would be immobilized by the stock market crash, consumers carried the 50 largest retailers to a 9% jump in total profits. But aside from that and some gains by diversified service companies, life insurers, and the transportation sector, the FORTUNE Service 500 had a rough time in 1987. The dazzling results of an elite group of service companies were overwhelmed by a post-crash slump in the brokerage business, sour loans at savings institutions, and huge write-offs in Third World debt that produced a $5.3 billion loss for the largest commercial banks. Overall profits for the Service 500 plunged 22%. Compare that with the FORTUNE 500 industrial corporations—those smokestack companies that had suffered so long—whose profits rose a remarkable 41% last year (see FORTUNE, April 25).

Retailing had several standout performers, but the champ was Wal-Mart, whose sales go right on doubling every three years or so. Last year the Arkansas discount chain moved up from No. 7 to No. 5 among retailers, with $16 billion in sales. Wal-Mart placed even better—No. 3—in profits and in return on stock-

holders' equity. It is still a long way from toppling league leader Sears, which managed a 22% jump in profits despite the high cost of promoting its Discover charge card. Sears chief Edward Brennan can at least take comfort that the card turned a small profit in the first quarter of 1988 after $400 million of pretax losses in two years.

Even as they kept the aisles filled with customers, some retailers found themselves on shopping lists. Canada's Robert Campeau, who picked up Allied Stores (No. 27), got into a bidding war early this year with R.H. Macy (No. 20) for Federated (No. 8). Campeau's winning bid of $6.6 billion leaves him with a mountain of debt, which he will retire by selling some of Federated's operations.

Rebirth and restructuring put a glow on some of the 100 largest diversified service companies, whose total earnings rose 7%. Walt Disney's formerly lackluster movie studios have become hit factories under the three-year reign of CEO Michael Eisner, and revenues from theme parks have rocketed following steep increases in admission prices. Disney moved up the diversified service list from No. 28 to No. 20 in sales, delivering profits the way the sorcerer's apprentice delivered water in the movie *Fantasia*. On an 80% increase in profits last year, Disney jumped all the way from No. 8 by that ranking to No. 2.

CBS's story, by contrast, was one of retrenchment. The television network plunged from No. 4 in sales to No. 25 as cost-cutting boss Laurence Tisch shucked

PHOTOGRAPH BY JOHN MADERE

BIGGEST GAINERS

THE TEN LARGEST INCREASES IN SALES

	RANK	
MAXICARE HEALTH PLANS	S-39	97.2%
TEXAS AIR	T-3	92.3
AMERICA WEST AIRLINES	T-35	74.9
LOMAS & NETTLETON FINAN.	F-35	68.0
USAIR GROUP	T-16	63.5
SOUTHMARK	F-40	62.5
PHH GROUP	S-53	57.3
RITE AID	R-38	56.3
ALASKA AIR GROUP	T-27	51.2
BINDLEY WESTERN	S-68	48.4

THE TEN LARGEST INCREASES IN PROFITS

TEXAS EASTERN	U-44	7,482.6%
ALLEGIS	T-1	2,788.9
DELTA AIR LINES	T-9	457.7
FIRST COMMERCE CORP.	B-98	440.8
FIRST SECURITY CORP.	B-90	430.8
KROGER	R-4	379.0
AMERICAN PRESIDENT COS.	T-19	340.3
FARM HOUSE FOODS	S-92	293.3
HUMANA	S-22	235.8
TW SERVICES	S-31	200.8

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BIGGEST LOSERS

THE TEN LARGEST DECREASES IN SALES

AON	F-30	89.8%
CBS	S-25	43.6
CARTER HAWLEY HALE STORES	R-33	29.8
CHARTER	S-74	28.9
GELCO	S-98	28.4
SOUTHLAND	R-12	27.1
BENEFICIAL	F-31	25.2
ENRON	U-28	24.7
CULBRO	S-88	23.7
PS GROUP	S-99	23.2

THE FIVE LARGEST DECREASES IN PROFITS

BANKERS TRUST N.Y. CORP.	B-8	99.7%
AMERICAN CAPITAL CORP.	I-29	98.0
RIGGS NATIONAL CORP.	B-69	97.2
UNITED BANKS OF COLORADO	B-82	97.0
SECURITY PACIFIC CORP.	B-6	95.9

THE FIVE LARGEST LOSSES

		$ MIL.
MAN. HAN. CORP.	B-7	$1,140
CITICORP	B-1	$1,138
FST. CITY BANCORP. OF TEX.	B-46	$1,130
BANKAMERICA CORP.	B-3	$955
CHASE MANHATTAN CORP.	B-2	$895

Sales comparisons exclude commercial and savings banks, diversified financial and life insurance companies. Profit comparisons exclude life insurance companies and money losers.

PROFIT LEADERS

THE TEN HIGHEST RETURNS ON SALES

	RANK	
AON	F-30	84.4%
ARGONAUT GROUP	F-50	40.1
ILLINOIS POWER	U-39	23.7
FARMERS GROUP	F-39	23.7
OHIO EDISON	U-27	23.2
PINNACLE WEST	U-33	21.7
CENTERIOR ENERGY	U-16	20.1
DETROIT EDISON	U-18	19.4
COMMONWEALTH EDISON	U-11	19.1
ALEXANDER & BALDWIN	T-28	18.4
THE SERVICE 500 MEDIAN		2.9

Commercial banks, savings institutions, and life insurance companies are not included.

THE TEN HIGHEST RETURNS ON STOCKHOLDERS' EQUITY

	RANK	
TIGER INTERNATIONAL	T-22	287.7%
MISSOURI-KANSAS-TEXAS R.R.	T-48	155.7
SERVICEMASTER	S-50	142.2
AMERICAN FINANCIAL	F-28	77.0
CHARTER	S-74	56.0
SUN CARRIERS	T-34	49.5
LUCKY STORES	R-15	46.3
ARGONAUT GROUP	F-50	42.2
AIR EXPRESS INTERNATIONAL	T-41	41.0
RELIANCE GROUP HOLDINGS	F-29	40.6
THE SERVICE 500 MEDIAN		11.5

Life insurance companies are not included.

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NINA BARNETT

In the fast-growing Wal-Mart discount chain, "people greeters" like Edyth

businesses. The good news? CBS's profits, up 21%, were the highest in the group.

For all its profit growth, the diversified service sector had some significant losers. Michael Dingman at least managed to pare the huge losses at Henley Group (No. 14), a collection of companies also known as Dingman's Dogs, by one-third, to $278 million. But the shakeout in health care left some other companies worse off than they had been. Hospital Corp. of America (No. 4), a moneymaker in the previous year, recorded a $58 million loss. Maxicare Health Plans (No. 39) had a $256 million hemorrhage.

Diversified financial companies squeaked through 1987 with a mere 2.8% increase in total profits. Federal National Mortgage Association (No. 2), as well as Transamerica (No. 13) and insurer American International Group (No. 10), posted laudable gains. But profits dipped at other big insurers and a host of brokerage firms. Even top-ranked American Express endured a 57% decline, with earnings partly dragged down by a bad showing at the Shearson Lehman brokerage firm, 62% owned by the travel titan.

The profit news looked good at two other service groups last year, but it was not really much to cheer about. The 50 largest life insurers together scored an 11% increase in net gain from operations, a measure akin to profits. But because of the nature of the business, year-to-year fluctuations, even of this magnitude, prove little. Earnings of the 50 biggest transportation companies were up nearly ninefold in 1987. But it was easy to rebound from the previous year, when a rash of restructurings and write-offs on the eve of tax law changes had virtually wiped out earnings. Burlington Northern, for example, had shown an $860 million loss. Last year the railroad (No. 6) was back on the profitability express

REPORTER ASSOCIATE *Mark Alpert*

Lammey in Rogers, Arkansas, say hi.

with earnings of $369 million.

From here, the news is all downhill. Profits of the largest 50 utilities were off somewhat, partly because state regulators barred several electric companies from passing on all of the costs of nuclear plants to customers. That helped create a $557 million loss at Niagara Mohawk Power (No. 32). The 50 largest savings institutions suffered a horrendous 63% drop in profits as more and more bad loans were written off.

The 100 largest commercial banks took the real bath, with the top 19 companies on the list all reporting pinched earnings or towering losses. Leading the losers were Manufacturers Hanover (No. 7) and top-ranked Citicorp, both of which set aside enormous reserves for a chunk of their Third World loans and wound up more than $1 billion in the deficit column. These losses far outweighed solid profit gains at robust regional banks.

—Reed Abelson and Charles A. Riley II

INVESTMENT PERFORMANCE

THE TEN HIGHEST TOTAL RETURNS TO INVESTORS, 1977-87 ANNUAL AVERAGE*

	RANK	
CHARTER MEDICAL	S-86	52.1%
FOOD LION	R-32	51.4
WAL-MART STORES	R-5	46.0
COMDISCO	S-61	43.4
M.D.C. HOLDINGS	S-93	39.9
STATE STREET BOSTON CORP.	B-68	39.7
WASTE MANAGEMENT	S-26	39.3
GIANT FOOD	R-37	38.2
DCNY	F-41	36.3
BROWNING-FERRIS IND.	S-46	35.9
THE FIVE LOWEST		
FIRST CITY BANCORP. OF TEX	B-46	−27.7
MCORP	B-33	−12.0
TEXAS AMER BANCSHARES	B-88	−11.5
TRANSCON	T-44	−10.5
EQUIMARK CORP.	B-100	−10.3
THE SERVICE 500 MEDIAN		16.9

*Life insurance companies are not included.

THE TEN HIGHEST TOTAL RETURNS TO INVESTORS, 1987*

	RANK	
FOOD LION	R-32	111.1%
HOLIDAY	S-45	70.1
NIKE	S-76	70.0
GREAT A & P TEA	R-13	61.7
SANTA FE SOUTHERN PACIFIC	T-8	58.9
MCI COMMUNICATIONS	U-43	50.0
VALLEY FEDERAL S&L ASS'N	I-47	48.9
AMFAC	S-33	46.0
OGDEN	S-79	43.3
GIANT FOOD	R-37	42.4
THE FIVE LOWEST		
FIRST CITY BANCORP. OF TEX.	B-46	−87.9
FINANCIAL CORP. OF AMERICA	I-1	−85.0
FIRST REPUBLICBANK CORP.	B-13	−79.1
MAXICARE HEALTH PLANS	S-39	−77.6
TEXAS AMER. BANCSHARES	B-88	−77.2
THE SERVICE 500 MEDIAN		−11.5

*Life insurance companies are not included.

PRODUCTIVITY

THE TEN HIGHEST IN SALES PER DOLLAR OF STOCKHOLDERS' EQUITY

	RANK	
TIGER INTERNATIONAL	T-22	$61.33
TURNER	S-24	55.97
ROUNDY'S	S-42	36.98
SERVICEMASTER	S-50	33.79
FARM HOUSE FOODS	S-92	25.84
LEASEWAY TRANS.	T-21	25.73
ARA HOLDING	S-9	25.59
MAYFLOWER GROUP	T-29	25.27
AMERICAN FINANCIAL	F-28	24.49
BINDLEY WEST. IND.	S-68	24.17
THE FIVE LOWEST		
PINNACLE WEST CAPITAL	U-33	$.57
ILLINOIS POWER	U-39	.57
LONG ISLAND LIGHTING	U-25	.55
OVERSEAS SHIPHOLDING GP.	T-46	.44
AON	F-30	.16
THE SERVICE 500 MEDIAN		3.10

*Commercial banks, savings institutions, and life insurance companies are not included.

THE TEN HIGHEST IN SALES PER EMPLOYEE

	RANK	$ THOU.
FED. NAT'L MORT. ASS'N	F-2	$4,031
GELCO	S-98	3,715
BINDLEY WEST. IND.	S-68	2,814
SUBARU OF AMERICA	S-40	1,700
GENERAL RE	F-25	1,430
STUD LOAN MARKETING	F-14	1,397
EMERSON RADIO	S-87	1,157
COMDISCO	S-61	1,068
KAY	S-96	1,017
ENRON	U-28	879
THE FIVE LOWEST		
OGDEN	S-79	$23
SOUTHMARK	F-40	22
TW SERVICES	S-31	21
AON	F-30	20
BEVERLY ENTERPRISES	S-35	19
THE SERVICE 500 MEDIAN		157

*Commercial banks, savings institutions, and life insurance companies are not included.

THE 100 LARGEST

DIVERSIFIED SERVICE COMPANIES

RANK BY SALES		COMPANY	SALES[1]	ASSETS		PROFITS		STOCKHOLDERS' EQUITY	
1987	1986		$ Millions	$ Millions	Rank	$ Millions	Rank	$ Millions	Rank
1	1	**SUPER VALU STORES** Eden Prairie, Minn.[2]	9,371.7	2,016.2	33	111.8	18	677.4	27
2	2	**FLEMING COS.** Oklahoma City	8,608.1	1,342.1	41	49.5‡	37	522.1	39
3	3	**MCKESSON** San Francisco[3]	6,671.6	2,207.6	28	89.7	23	762.2	23
4	6	**HOSPITAL CORP. OF AMERICA** Nashville	4,675.9	6,182.6	1	(58.4)	90	1,945.7	6
5	12	**RYDER SYSTEM** Miami	4,609.1	5,770.6	2	187.1	10	1,414.0	12
6	10	**NATIONAL INTERGROUP** Pittsburgh[3]	4,541.3	2,098.6	30	(45.0)	88	745.7	25
7	11	**CAPITAL CITIES COMM./ABC** New York	4,440.3	5,378.4	4	279.1	9	2,224.9	3
8	8	**ELECTRONIC DATA SYSTEMS** Dallas[4]	4,323.8	2,957.9	23	323.1	8	1,053.5	14
9	13	**ARA HOLDING** Philadelphia[5]	4,019.0	1,656.4	36	21.6	59	157.0	71
10	5	**FLUOR** Irvine, Calif.[6]	3,924.5	2,061.2	32	26.6**	56	531.7	37
11	15	**WETTERAU** Hazelwood, Mo.[3]	3,842.2	682.8	66	35.0	46	209.9	64
12	16	**SYSCO** Houston[7]	3,655.9	860.3	59	61.8	28	456.0	41
13	7	**ALCO STANDARD** Valley Forge, Pa.[5]	3,616.5	1,324.3	42	80.2	25	604.3	29
14	17	**HENLEY GROUP** La Jolla, Calif.	3,516.0	4,698.0	6	(278.0)	97	3,364.0	1
15	21	**WARNER COMMUNICATIONS** New York	3,403.6	3,897.0	9	328.1	5	1,541.7	11
16	19	**BERGEN BRUNSWIG** Orange, Calif.[8]	3,376.0	785.0	61	15.9	62	188.7	66
17	20	**NATIONAL MEDICAL ENTERPRISES** Los Angeles[9]	3,370.0¶	3,434.0	15	63.0‡	27	925.0	18
18	14	**HALLIBURTON** Dallas	3,368.0	3,270.6	20	48.1	39	2,081.5	5
19	18	**DUN & BRADSTREET** New York	3,359.2	3,316.8	19	393.0	3	1,663.8	9
20	28	**WALT DISNEY** Burbank, Calif.[8]	3,140.0	3,806.3	10	444.7	2	1,845.4	8
21	31	**GULF & WESTERN** New York[6,10]	2,903.6	4,928.9	5	356.1	4	2,106.6	4
22	24	**HUMANA** Louisville, Ky.[8]	2,831.8	3,208.8	21	182.8	11	1,012.0	15
23	22	**ENSERCH** Dallas	2,796.1	3,336.5	18	30.5	51	783.2	21
24	27	**TURNER** New York	2,789.9	981.8	52	(22.3)	84	49.8	93
25	4	**CBS** New York	2,762.0	3,910.2	8	452.5	1	1,201.6	13
26	35	**WASTE MANAGEMENT** Oak Brook, Ill.	2,757.6	3,351.2	17	327.1	6	1,885.3	7
27	26	**ASSOCIATED MILK PRODUCERS** San Antonio	2,755.3	462.4	76	7.0	72	136.1	78
28	25	**AMERICAN MEDICAL INT'L** Beverly Hills, Calif.[8]	2,703.5	3,712.3	12	105.4	20	959.4	16
29	30	**GENUINE PARTS** Atlanta	2,606.2	1,026.8	49	148.3	14	760.3	24
30	29	**MCA** Universal City, Calif.	2,589.6	3,534.8	13	137.3	16	1,557.6	10
31	38	**TW SERVICES** New York	2,492.2	2,114.3	29	47.2	40	450.3	42
32	23	**GREYHOUND** Phoenix	2,259.0	3,408.8	16	25.1‡	57	937.1	17
33	36	**AMFAC** San Francisco	2,195.1	1,078.3	47	5.0	76	411.6	46
34	33	**BERKSHIRE HATHAWAY** Omaha	2,174.3	5,379.7	3	234.6	9	2,841.7	2
35	34	**BEVERLY ENTERPRISES** Pasadena, Calif.	2,093.6	2,072.0	31	(30.5)‡	86	569.0	34
36	43	**NASH FINCH** St. Louis Park, Minn.	1,919.5	352.2	83	18.5	60	142.8	75
37	32	**MORRISON KNUDSEN** Boise, Idaho	1,865.6	898.5	56	(59.5)	93	355.1	50
38	●	**HERTZ CORPORATION** New York	1,862.0	2,912.0	24	54.0	33	735.0	26
39	73	**MAXICARE HEALTH PLANS** Los Angeles	1,802.9	992.3	51	(255.9)	96	(29.3)	99
40	37	**SUBARU OF AMERICA** Cherry Hill, N.J.[6]	1,785.0	647.0	67	(30.0)	85	267.5	57
41	39	**CASTLE & COOKE** Los Angeles	1,749.1	1,624.8	37	84.1	24	531.9	36
42	40	**ROUNDY'S** Pewaukee, Wis.	1,738.9	261.5	92	5.8	74	47.0	94
43	53	**ALCO HEALTH SERVICES** Valley Forge, Pa.[5]	1,732.9	468.2	74	18.0	61	141.8	76
44	42	**BALLY MANUFACTURING** Chicago	1,676.3	2,525.1	25	57.1	30	570.3	33
45	41	**HOLIDAY** Memphis	1,662.7	2,399.3	26	108.1	19	(769.9)	100
46	51	**BROWNING-FERRIS INDUSYRIES** Houston[5]	1,656.6	1,937.6	35	172.0	12	874.5	20
47	46	**IU INTERNATIONAL** Wilmington, Del.	1,576.0	899.3	55	28.6**	52	239.6	60
48	49	**AVNET** New York[7]	1,539.3	1,062.4	48	22.8	58	657.9	28
49	48	**SUPER FOOD SERVICES** Dayton, Ohio[8]	1,535.0	210.8	96	11.9	65	79.7	89
50	62	**SERVICEMASTER** Downers Grove, Ill.	1,425.3	371.1	81	60.0	29	42.2	96

THE DEFINITIONS AND CONCEPTS UNDERLYING THE FIGURES IN THIS DIRECTORY ARE EXPLAINED ON PAGE D37.

● Not on last year's list.

¶ Includes sales from discontinued operations of at least 10%.

** Reflects an extraordinary credit of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

‡ Reflects an extraordinary charge of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

§ Dividends paid on mandatory redeemable preferred stock subtracted from net income.

N.A. Not available.

[1] Net sales include all operating revenues and revenues from discontinued operations when they are published. All figures are for the fiscal year that ended December 31, 1987, unless

THE SERVICE 500

EMPLOYEES		PROFITS AS PERCENT OF				EARNINGS PER SHARE					TOTAL RETURN TO INVESTORS				RANK
		SALES		STOCKHOLDERS' EQUITY					1977-87 annual growth rate		1987		1977-87 annual average		
Number	Rank	%	Rank	%	Rank	1987/$	1986/$	1977/$	%	Rank	%	Rank	%	Rank	1987
33,595	15	1.2	56	16.5	27	1.50	1.23	0.31	17.2	16	(25.7)	70	19.0	34	1
18,620	26	0.6	73	9.5	55	1.86‡	1.80	1.14	5.0	43	(18.5)	66	16.6	44	2
17,000	31	1.3	54	11.8	46	2.07	1.98	1.31	4.7	44	(13.4)	59	18.0	38	3
63,000	5	—		—		(0.71)	2.08	0.65	—		4.5	33	18.1	37	4
41,213	11	4.1	32	13.2	36	2.29	2.09	0.73	12.0	25	(19.4)	69	23.5	21	5
7,492	56	—		—		(2.46)	(4.50)	3.12	—		(12.8)	58	—		6
20,120	24	6.3	22	12.5	41	16.46	27.55**	3.13	18.0	13	28.8	10	27.9	14	7
43,433	10	7.5	15	30.7	4	N.A.	N.A.	N.A.	—		—		—		8
119,000	2	0.5	74	13.8§	32	N.A.	N.A.	N.A.	—		—		—		9
14,351	42	0.7	67	5.0	69	0.33**	(0.76)	1.49	(14.0)	56	20.4	18	3.8	68	10
11,500	47	0.9	63	16.7	25	2.82	2.90	1.41	7.2	40	(10.0)	53	14.1	53	11
12,000	45	1.7	50	13.6	34	1.40	1.34	0.28	17.3	15	(8.7)	49	30.0	13	12
16,400	36	2.2	45	13.3	35	1.81	1.33	1.03	5.7	41	0.1	37	18.4	35	13
16,500	35	—		—		(2.87)	(5.33)	N.A.	—		(5.0)	44	—		14
8,900	54	8.8	12	21.3	14	2.09	1.26	0.75	10.9	27	24.3	15	21.5	28	15
4,000	73	0.5	75	8.4	58	1.19	1.54	(0.03)	—		(0.9)	39	27.9	15	16
75,000	4	1.9	48	6.8	65	0.83‡	1.08‡	0.37	8.4	36	(13.9)	60	24.2	20	17
48,600	7	1.4	53	2.3	75	0.45	(4.85)	3.03	(17.4)	59	4.6	32	1.1	72	18
60,000	6	11.7	7	23.6	10	2.58	2.23	0.53	17.2	17	6.6	30	25.6	17	19
30,000	19	14.2	3	24.1	9	3.23	1.82	0.63	17.7	14	38.1	6	21.5	30	20
19,300	25	12.3	4	16.9	24	5.76	4.28**	2.32	9.5	34	13.9	25	27.2	16	21
46,500	8	6.5	18	18.1	21	1.86	0.56	0.16	27.8	4	4.2	34	31.4	10	22
16,500	34	1.1	59	3.9	71	0.27	0.17	1.77	(17.1)	58	11.9	26	9.5	63	23
3,373	75	—		—		(5.09)	2.41	0.75	—		(17.1)	65	15.5	51	24
16,900	32	16.4	2	37.7	3	17.74	15.42	6.50	10.6	28	25.8	13	17.0	41	25
30,650	18	11.9	6	17.3	23	1.46	1.76	0.15	25.3	6	36.5	8	39.3	4	26
4,188	70	0.3	78	5.1	68	N.A.	N.A.	N.A.	—		—		—		27
40,000	12	3.9	33	11.0	49	1.20	(1.12)	0.50	9.1	35	(10.6)	55	13.2	56	28
14,680	40	5.7	23	19.5	19	1.88	1.52	0.71	10.2	30	25.3	14	16.7	42	29
16,800	33	5.3	24	8.8	56	1.82	2.02	1.37	2.9	47	(8.8)	50	15.5	50	30
120,000	1	1.9	47	10.5	51	0.97**	0.27	N.A.	—		(0.2)	38	—		31
29,694	20	1.1	58	2.7§	73	0.62‡	4.09	1.88	(10.5)	54	(14.8)	61	14.0	54	32
18,000	30	0.2	79	1.2	79	0.04	(4.27)	1.22	(28.9)	61	46.0	3	10.8	61	33
23,000	22	10.8	8	8.3	59	204.51	246.19	29.29	21.5	10	4.6	31	35.8	6	34
110,000	3	—		—		(0.54)‡	0.71‡	0.27	—		(56.7)	82	19.6	33	35
9,000	53	1.0	61	13.0	38	1.75	1.35	0.83	7.7	37	7.2	29	—		36
14,481	41	—		—		(5.51)	3.60	1.96	—		(18.8)	68	16.4	46	37
15,600	37	2.9	44	7.3	63	N.A.	N.A.	N.A.	—		—		—		38
6,500	59	—		—		(7.65)	0.13	N.A.	—		(77.6)	87	—		39
1,130	93	—		—		(0.62)	1.92	0.09	—		(68.3)	84	34.5	7	40
39,250	13	4.8	27	15.8	28	1.78	0.56	1.89	(0.6)	51	(3.9)	41	7.5	64	41
4,685	65	0.3	76	12.2	42	N.A.	N.A.	N.A.	—		—		—		42
2,683	80	1.0	60	12.7	40	1.39	1.20	N.A.	—		(7.0)	46	—		43
29,521	21	3.4	37	10.0	52	1.62	0.81	0.80	7.2	39	(34.1)	76	5.0	66	44
44,272	9	6.5	17	—		4.42	4.15	1.71	10.0	33	70.1	1	25.4	18	45
18,200	27	10.4	9	19.7	17	1.15	0.95	0.17	20.8	11	26.9	12	35.9	5	46
15,000	38	1.8	49	11.9	45	0.48**	3.22**	1.75	(12.1)	55	(10.1)	54	12.1	58	47
9,500	52	1.5	52	3.5	72	0.64	0.67	1.27	(6.6)	53	(6.3)	45	15.2	52	48
1,958	85	0.8	64	15.0§	31	1.68	1.48	0.51	12.7	24	0.8	36	23.5	22	49
14,861	39	4.2	30	142.2	1	1.90	1.00	0.23	23.8	8	16.5	22	23.3	23	50

otherwise noted. Sales of subsidiaries are included when they are consolidated. All companies on the list must have derived more than 50% of their revenues from non-manufacturing and/or non-mining businesses. Excluded (but eligible for the lists that follow) are companies deriving more than 50% of their revenues solely from banking, life insurance, finance, savings, retailing, transportation, or utilities.

[2] Figures are for fiscal year ended February 29, 1988.

[3] Figures are for fiscal year ended March 31, 1987.

[4] Wholly owned by General Motors (No. 1 on the FORTUNE 500 Industrial list).

[5] Figures are for fiscal year ended September 30, 1987.

THE 100 LARGEST

DIVERSIFIED SERVICE COMPANIES

RANK BY SALES		COMPANY	SALES[1]	ASSETS		PROFITS		STOCKHOLDERS' EQUITY	
1987	1986		$ Millions	$ Millions	Rank	$ Millions	Rank	$ Millions	Rank
51	●	**REEBOK INTERNATIONAL** Canton, Mass.	1,389.2	868.4	57	165.2	13	584.8	31
52	55	**AUTOMATIC DATA PROCESSING** Roseland, N.J.[7]	1,384.2	1,444.9	38	132.0	17	875.1	19
53	80	**PHH GROUP** Hunt Valley, Md.[11]	1,362.0	3,483.5	14	39.5	43	288.9	54
54	57	**PITTSTON** Greenwich, Conn.	1,340.8	315.6	86	(133.0)	95	403.1	47
55	59	**W.W. GRAINGER** Skokie, Ill.	1,320.8	832.1	60	90.5	22	581.2	32
56	45	**TESORO PETROLEUM** San Antonio[5]	1,320.2	577.6	70	(11.0)	82	186.7	67
57	47	**CENTEX** Dallas[3]	1,303.9	993.7	50	44.2	42	363.0	49
58	●	**ITEL** Chicago	1,274.0	1,944.9	34	8.3‡	68	415.1	45
59	58	**BLOUNT** Montgomery, Ala.[2]	1,233.9	723.9	62	7.2	70	141.1	77
60	54	**DI GIORGIO** San Francisco	1,180.5¶	322.2	85	(16.3)	83	148.8	73
61	79	**COMDISCO** Rosemont, Ill.[5]	1,175.0	3,023.0	22	94.0	21	466.0	40
62	68	**KELLY SERVICES** Troy, Mich.	1,161.4	261.8	91	50.5	36	184.2	69
63	60	**CBI INDUSTRIES** Oak Brook, Ill.	1,159.7	1,266.0	44	14.1	64	593.4	30
64	83	**PULTE HOME** West Bloomfield, Mich.	1,130.6	3,742.2	11	37.2	44	225.5	62
65	52	**FISCHBACH** New York[5]	1,102.7	496.5	73	(36.0)	87	101.7	82
66	67	**RYKOFF-SEXTON** Los Angeles[11]	1,081.6	307.2	87	8.0	69	94.5	84
67	61	**ALLEGHENY BEVERAGE** Cheverly, Md.[3]	1,069.8¶	568.5	71	(59.3)‡	92	89.9	85
68	92	**BINDLEY WESTERN INDUSTRIES** Indianapolis	1,055.2	255.3	93	1.8	80	43.7	95
69	82	**COMPUTER SCIENCES** El Segundo, Calif.[3]	1,031.5	595.7	69	32.2	48	284.8	55
70	72	**VIACOM INTERNATIONAL** New York	1,010.7	3,936.9	7	(123.5)	94	531.0	38
71	70	**DAIRYMEN** Louisville, Ky.[8]	1,009.4	238.5	94	5.8	73	81.6	87
72	81	**GUY F. ATKINSON** S. San Francisco, Calif.	967.9	466.5	75	2.2	79	185.6	68
73	88	**INTERPUBLIC GROUP OF COS.** New York	947.3	1,346.9	40	49.3	38	280.0	56
74	50	**CHARTER** Jacksonville, Fla.	945.7	305.8	88	46.9**	41	83.7	86
75	95	**AMERICAN HARDWARE SUPPLY** Butler, Pa.[7,12]	886.0	226.7	95	N.A.		62.2	91
76	63	**NIKE** Beaverton, Ore.[9]	877.4	511.8	72	35.9	45	338.0	52
77	77	**COMMERCIAL METALS** Dallas[8]	872.8	302.3	89	10.2	67	154.9	72
78	●	**NASHUA CORPORATION** Nashua, N.H.	865.0	407.0	79	26.6	54	208.5	65
79	66	**OGDEN** New York	858.3	946.9	54	54.0	32	415.9	44
80	75	**INDIANA FARM BUREAU COOPERATIVE** Indianapolis[8,12]	854.5	193.9	99	N.A.		81.5	88
81	97	**RYLAND GROUP** Columbia, Md.	847.9	380.2	80	32.2	49	133.5	79
82	91	**HILTON HOTELS** Beverly Hills, Calif.	843.8	1,423.6	39	139.9**	15	772.8	22
83	●	**TELEX** Tulsa	840.7	618.2	68	77.2	26	351.4	51
84	78	**PIONEER HI-BRED INTERNATIONAL** Des Moines[8]	839.9	866.2	58	53.9	34	546.2	35
85	86	**SUNKIST GROWERS** Sherman Oaks, Calif.[6,12]	819.5	197.6	98	N.A.		65.2	90
86	98	**CHARTER MEDICAL** Macon, Ga.[5]	812.8	1,123.6	46	52.0	35	263.0	58
87	●	**EMERSON RADIO** North Bergen, N.J.[3]	810.1	322.8	84	26.6	55	96.0	83
88	65	**CULBRO** New York	808.0	425.3	77	31.5	50	144.2	74
89	76	**U.S. HOME** Houston	786.7	722.7	63	(45.7)	89	175.6	70
90	93	**CAESARS WORLD** Los Angeles[13]	779.7	711.7	64	33.7‡	47	417.4	43
91	●	**LORIMAR-TELEPICTURES** Culver City, Calif.[3]	766.2	1,170.5	45	(58.6)**	91	386.1	48
92	●	**FARM HOUSE FOODS** Milwaukee[5]	763.9	200.6	97	2.2**	78	29.6	98
93	94	**M.D.C. HOLDINGS** Denver, Colo.	751.3	1,294.5	43	27.1	53	225.9	61
94	99	**RAMADA INNS** Phoenix	747.3	947.4	53	4.9‡	76	300.3	53
95	87	**PERINI** Framingham, Mass.	741.4	362.1	82	11.3	66	118.2	81
96	85	**KAY** New York	733.5	421.2	78	7.0	71	35.7	97
97	●	**UNITED STATIONERS** Des Plaines, Ill.[8]	729.9	294.7	90	15.1	63	132.0	80
98	69	**GELCO** Eden Prairie, Minn.[13]	728.1	2,267.6	27	(4.9)	83	216.3	63
99	25	**PS GROUP** San Diego	687.8¶	683.2	65	55.6	31	255.3	59
100	84	**COUNTRYMARK** Delaware, Ohio[8]	679.8	185.9	100	4.6	77	60.6	92
		TOTALS	202,760.3	163,341.4		5,241.1		55,681.7	

● Not on last year's list.
¶ Includes sales from discontinued operations of at least 10%.
** Reflects an extraordinary credit of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.
‡ Reflects an extraordinary charge of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.
§ Dividends paid on mandatory redeemable preferred stock subtracted from net income.
N.A. Not available.

[6] Figures are for fiscal year ended October 31, 1987.
[7] Figures are for fiscal year ended June 30, 1987.
[8] Figures are for fiscal year ended August 31, 1987.
[9] Figures are for fiscal year ended May 31, 1987.

THE SERVICE 500

EMPLOYEES		PROFITS AS PERCENT OF				EARNINGS PER SHARE					TOTAL RETURN TO INVESTORS				RANK
		SALES		STOCKHOLDERS' EQUITY					1977-87 annual growth rate		1987		1977-87 annual average		
Number	Rank	%	Rank	%	Rank	1987/$	1986/$	1977/$	%	Rank	%	Rank	%	Rank	1987
2,400	81	11.9	5	28.3	5	1.49	1.27	N.A.	—		(8.4)	48	—		**51**
21,000	23	9.5	10	15.1	30	1.76	1.45	0.39	16.1	20	28.5	11	21.9	27	**52**
4,417	68	2.9	43	13.7	33	2.35	2.40	0.69	13.0	23	(8.3)	47	17.9	39	**53**
13,900	43	—		—		(3.47)	0.27	1.90	—		(14.9)	62	(5.4)	74	**54**
6,258	59	6.9	16	15.6	29	3.14	2.96	1.19	10.2	29	37.1	7	16.6	43	**55**
2,200	83	—		—		(0.80)	(9.76)	(5.52)	—		2.3	35	5.3	65	**56**
4,500	66	3.4	38	12.2	43	2.47	2.62	0.95	10.1	31	(44.3)	79	9.6	62	**57**
4,133	71	0.7	70	2.0	76	(0.41)‡	2.77	3.11	—		31.8	9	(0.5)	73	**58**
9,800	50	0.6	71	5.1	69	0.60	1.01	0.40	4.1	46	(17.0)	64	16.5	45	**59**
4,000	72	—		—		(0.54)	1.85	1.31	—		(18.7)	67	12.9	57	**60**
1,100	92	8.0	14	20.2	15	2.26	1.91	0.12	34.0	2	19.2	20	43.4	2	**61**
3,600	74	4.3	28	27.4	7	2.10	1.51	0.30	21.5	9	21.0	17	32.4	9	**62**
12,000	46	1.2	55	2.4	74	0.38	1.05**	6.05	(24.2)	60	(29.6)	74	2.3	70	**63**
1,649	87	3.3	39	16.5	26	1.42	0.79	0.23	20.0	12	(30.3)	75	30.3	12	**64**
9,000	53	—		—		(9.22)	(7.47)‡	3.48	—		(71.3)	85	(9.0)	75	**65**
4,800	62	0.7	66	8.5	57	1.14	1.24	0.90	2.4	48	(12.8)	58	17.8	40	**66**
32,000	17	—		—		(6.96)‡	8.57	0.79	—		(27.1)	71	11.0	60	**67**
375	99	0.2	81	4.2	70	0.28	0.67	N.A.	—		(41.4)	78	—		**68**
18,175	28	3.1	41	11.3	48	2.08	1.69	1.02	7.4	38	19.5	19	18.3	36	**69**
4,800	63	—		—		(2.08)	N.A.	N.A.	—		—		—		**70**
4,315	69	0.6	72	7.1	64	N.A.	N.A.	N.A.	—		—		—		**71**
6,711	56	0.2	80	1.2	80	0.25	0.97	N.A.	—		(1.3)	40	—		**72**
13,300	44	5.2	25	17.6	22	2.25	1.87	0.80	10.9	26	18.2	21	22.6	26	**73**
3,361	76	5.0	26	56.0	2	0.98**	3.23	1.00	(0.2)	50	(9.7)	52	2.6	69	**74**
1,240†	90	0.0	82	—		N.A.	N.A.	N.A.	—		—		—		**75**
3,000	78	4.1	31	10.6	50	0.93	1.55	N.A.	—		70.0	2	—		**76**
2,993	79	1.2	57	6.6	66	1.14	1.60	(0.03)	—		22.0	16	24.8	19	**77**
6,700	57	3.1	42	12.8	39	2.72	2.13	1.65	5.1	42	15.4	23	13.6	55	**78**
38,000	14	6.3	21	13.0	37	1.35	3.07	2.58	(6.3)	52	43.3	4	20.6	31	**79**
1,001	94	0.8	65	—		N.A.	N.A.	N.A.	—		—		—		**80**
2,258	82	3.8	35	24.1	8	2.46	2.02	0.53	16.6	19	(28.2)	72	21.5	29	**81**
32,000	16	16.6	1	18.1	20	5.59**	3.92	1.42	14.7	22	7.9	27	22.6	25	**82**
8,000	55	9.2	11	22.0	11	5.24	4.60	0.58**	24.6	7	(15.3)	63	35.6	8	**83**
5,117	61	6.4	19	9.9	53	1.69	2.31	1.09	4.5	45	7.4	28	15.9	47	**84**
1,100	91	—		—		N.A.	N.A.	N.A.	—		—		—		**85**
10,500	48	6.4	20	19.8	16	1.69	1.40	0.09	34.2	1	41.6	5	52.1	1	**86**
700†	98	3.3	40	27.7	6	0.72	0.37	0.07	27.1	5	(72.4)	86	22.7	24	**87**
4,750	64	3.9	34	21.8	12	7.34	6.00	1.65	16.1	21	(4.8)	42	20.0	32	**88**
1,624	88	—		—		(1.14)	(2.05)	0.40	—		(46.7)	80	1.7	71	**89**
9,981	49	4.3	29	8.1	60	1.08‡	1.36	0.23	16.8	18	14.5	24	30.4	11	**90**
2,000†	84	—		—		(1.35)**	(0.60)	N.A.	—		(36.4)	77	—		**91**
1,900†	86	0.3	77	7.5	62	N.A.	N.A.	N.A.	—		—		—		**92**
1,260	89	3.6	36	12.0	44	1.36	1.81	(0.42)	—		(53.2)	81	39.9	3	**93**
18,060	29	0.7	69	1.6	77	0.12‡	0.27	0.62**	(15.1)	57	(11.3)	56	4.3	67	**94**
4,500†	66	1.5	51	9.5	54	3.12	1.56	1.20	10.0	32	(9.1)	51	15.7	48	**95**
721	97	1.0	62	19.6	18	1.20	2.64	0.98	2.0	49	(61.5)	83	11.7	59	**96**
3,013	77	2.1	46	11.5	47	0.99	0.96	N.A.	—		(4.8)	43	—		**97**
196	100	—		—		(0.55)	(0.47)‡	1.54	—		—		—		**98**
945	95	8.1	13	21.8	13	7.25	(2.25)	0.61	20.1	3	(28.6)	73	15.6	49	**99**
856	96	0.7	68	7.5	61	N.A.	N.A.	N.A.	—		—		—		**100**
1,737,579															

[10] Financial subsidiaries would add 25% or more to sales if consolidated.

[11] Figures are for fiscal year ended April 30, 1987.

[12] Cooperatives provide only net margin figures, which are not comparable to the profit figures in this list.

[13] Figures are for fiscal year ended July 31, 1987.

THE 100 LARGEST

COMMERCIAL BANKING COMPANIES

RANK BY ASSETS 1987	1986	COMPANY	ASSETS[1] $ Millions	DEPOSITS $ Millions	Rank	LOANS[2] $ Millions	Rank	PROFITS $ Millions	Rank
1	1	**CITICORP** New York	203,607.0	119,561.0	1	133,467.0	1	(1,138.0)	99
2	3	**CHASE MANHATTAN CORP.** New York	99,133.4	68,578.0	3	65,260.0	2	(894.8)	96
3	2	**BANKAMERICA CORP.** San Francisco	92,833.0	76,290.0	2	61,245.0	3	(955.0)	97
4	7	**CHEMICAL NEW YORK CORP.** New York[8]	78,189.0	55,509.0	4	47,732.0	6	(853.7)‡	94
5	4	**J.P. MORGAN & CO.** New York	75,414.0	43,987.0	7	28,923.0	9	83.3	22
6	6	**SECURITY PACIFIC CORP.** Los Angeles	73,356.0	45,551.0	5	49,940.0	5	15.7	66
7	5	**MANUFACTURERS HANOVER CORP.** New York	73,348.1	45,176.4	6	52,964.9	4	(1,140.2)	100
8	8	**BANKERS TRUST NEW YORK CORP.** New York	56,520.6	30,220.4	11	24,886.0	11	1.2‡	72
9	9	**FIRST INTERSTATE BANCORP** Los Angeles	50,926.6	37,569.7	8	31,556.7	8	(556.2)	90
10	11	**FIRST CHICAGO CORP.** Chicago	44,209.3	31,537.7	10	26,464.6	10	(570.7)	91
11	10	**WELLS FARGO & CO.** San Francisco	44,183.3	32,319.8	9	35,433.9	7	50.8	41
12	13	**BANK OF BOSTON CORP.** Boston	34,116.6	22,471.6	15	24,024.3	12	19.7	63
13	26	**FIRST REPUBLICBANK CORP.** Dallas[9]	33,210.7	25,490.6	12	22,848.9	13	(656.8)	93
14	14	**CONTINENTAL ILLINOIS CORP.** Chicago	32,391.0	19,624.0	20	18,940.0	17	(609.5)	92
15	22	**PNC FINANCIAL CORP.** Pittsburgh	31,432.6	20,347.7	18	16,647.4	23	204.8	5
16	12	**MELLON BANK CORP.** Pittsburgh	30,525.0	21,548.0	16	19,069.0	16	(863.0)	95
17	21	**BANK OF NEW ENGLAND CORP.** Boston	29,474.8	22,767.4	13	21,578.2	14	140.5	15
18	16	**NCNB CORP.** Charlotte, N.C.	28,915.4	19,550.0	21	17,086.8	20	166.9	8
19	34	**FIRST FIDELITY BANCORP.** Newark, N.J.[10]	28,850.3	20,938.0	17	17,402.0	19	86.3	21
20	17	**FIRST UNION CORP.** Charlotte, N.C.	27,629.5	17,425.3	23	15,125.1	25	283.1	1
21	18	**SUNTRUST BANKS** Atlanta	27,187.9	22,493.3	14	18,120.1	18	282.8	2
22	15	**FIRST BANK SYSTEM** Minneapolis	26,850.0	15,799.0	29	12,888.0	30	49.6	42
23	48	**SHAWMUT NATIONAL CORP.** Boston[11]	26,477.0	17,247.0	25	17,055.0	21	158.9	12
24	19	**MARINE MIDLAND BANKS** Buffalo and New York	25,453.3	17,303.2	24	20,119.4	15	(408.8)	89
25	20	**IRVING BANK CORP.** New York	23,534.0	15,152.0	30	14,427.0	26	(193.3)	86
26	28	**BARNETT BANKS OF FLORIDA** Jacksonville	23,451.2	20,167.2	19	16,835.3	22	198.9	6
27	25	**NBD BANCORP** Detroit	23,353.6	18,166.9	22	12,989.9	28	160.8	11
28	27	**BANK OF NEW YORK CO.** New York	23,064.9	17,126.4	26	16,270.7	24	103.4‡	17
29	33	**REPUBLIC NEW YORK CORP.** New York	22,387.6	14,838.5	32	5,342.7	60	17.2‡	65
30	35	**SOVRAN FINANCIAL CORP.** Norfolk, Va.	21,233.5	16,666.8	27	13,744.7	27	217.4	3
31	24	**NORWEST CORP.** Minneapolis	20,747.0	13,643.8	35	12,513.3	34	(29.8)	78
32	30	**CITIZENS & SOUTHERN CORP.** Atlanta	20,444.1	14,974.1	31	12,820.9	32	157.9	13
33	23	**MCORP** Dallas	20,228.4	16,631.6	28	12,888.1	29	(258.3)	88
34	31	**FIRST WACHOVIA CORP.** Winston-Salem, N.C.	19,342.2	14,341.9	34	12,119.4	35	176.6	7
35	40	**BANC ONE CORP.** Columbus, Ohio	18,730.0	14,478.3	33	12,752.5	33	208.9	4
36	42	**MIDLANTIC BANKS** Edison, N.J.	17,791.8	13,638.2	36	12,840.4	31	161.5	10
37	54	**MNC FINANCIAL** Baltimore[12]	16,458.4	11,240.9	38	11,368.9	36	148.8	14
38	36	**CORESTATES FINANCIAL CORP.** Philadelphia	15,036.1	10,301.0	39	9,985.3	37	162.3	9
39	37	**NATIONAL CITY CORP.** Cleveland	14,912.4	11,426.5	37	9,923.6	38	96.9‡	19
40	55	**U.S. BANCORP** Portland, Ore.	13,352.7	9,521.5	42	8,668.7	39	108.5	16
41	41	**SOUTHEAST BANKING CORP.** Miami	12,842.2	9,518.1	43	8,073.5	41	38.4	52
42	52	**UNION BANCORP** Los Angeles[13]	11,916.9	8,789.2	46	8,405.0	40	(55.1)	82
43	60	**KEYCORP** Albany, N.Y.	11,596.4	9,379.1	44	7,461.1	45	80.0	25
44	45	**NATIONAL WESTMINSTER BANK USA** New York[14]	11,539.3	9,539.0	41	7,808.6	42	(212.0)	87
45	47	**VALLEY NATIONAL CORP.** Phoenix	11,300.0	9,736.4	40	7,730.6	43	(44.4)	79
46	39	**FIRST CITY BANCORP. OF TEXAS** Houston	11,202.4	9,352.5	45	7,488.0	44	(1,130.2)	98
47	56	**SIGNET BANKING CORP.** Richmond	10,724.4	7,624.9	52	6,760.1	48	23.5	61
48	49	**HARRIS BANKCORP** Chicago[15]	10,556.5	7,754.4	50	5,862.4	53	42.6	48
49	46	**AMERITRUST CORP.** Cleveland	10,333.7	7,755.4	49	6,972.3	47	(10.1)	75
50	63	**UNITED JERSEY BANKS** Princeton	10,139.2	7,876.0	48	6,568.2	50	102.7	18

● Not on last year's list.

** Reflects an extraordinary credit of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

† Average for the year; see the reference to "employees" on page D37.

‡ Reflects an extraordinary charge of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

§ Dividends paid on mandatory redeemable preferred stock subtracted from net income.

N.A. Not available.

[1] As of December 31, 1987. All companies on the list must have more than 80% of their assets in chartered commercial banking institutions.

[2] Net of unearned discount and loan loss revenue. Figure includes lease financing.

THE SERVICE 500

STOCKHOLDERS' EQUITY $ Millions	Rank	EMPLOYEES Number	Rank	NET PROFITS AS PERCENT OF EQUITY %	Rank	EARNINGS PER SHARE 1987/$	1986/$	1977/$	1977-87 annual growth rate %	Rank	TOTAL RETURN TO INVESTORS 1987 %	Rank	1977-87 annual average %	Rank	RANK 1987
8,810.0	1	90,000	1	—		(4.26)	3.57	1.49	—		(26.1)	71	10.9	74	**1**
3,852.3	3	42,390	4	—		(11.56)	6.63	1.91	—		(34.0)	80	11.3	72	**2**
3,259.0	5	65,151	2	—		(6.43)	(3.74)	2.72	—		(53.0)	88	(6.7)	83	**3**
3,003.0	6	28,597	7	—		(16.68)‡	7.57	3.03	—		(46.0)	85	9.0	76	**4**
5,036.0	2	15,731	15	1.7	67	0.39	4.74	1.33	(11.5)	61	(9.4)	41	18.7	44	**5**
3,368.0	4	43,260	3	0.5	71	0.01	4.86	1.63	(39.9)	69	(23.2)	67	15.5	57	**6**
2,704.1	8	29,125	6	—		(27.04)	7.99	5.15	—		(48.3)	86	3.6	81	**7**
2,889.1	7	12,292	27	0.0	74	0.02‡	6.01	1.26	(33.9)	68	(27.1)	73	20.5	32	**8**
2,165.7	10	36,253	5	—		(11.99)	7.19	3.29	—		(20.4)	62	11.9	69	**9**
1,801.8	12	15,108	17	—		(10.71)	4.70	2.88	—		(30.7)	77	6.4	79	**10**
2,247.6	9	20,100	10	2.3	66	0.52	5.03	2.01	(12.7)	62	(12.5)	47	18.6	46	**11**
1,748.9	14	20,200	9	1.1	70	0.10	3.69	0.85	(19.2)	65	(12.3)	46	22.1	16	**12**
1,157.5	31	15,239	16	—		(22.31)	1.65	3.46	—		(79.1)	91	(10.0)	84	**13**
1,364.0	22	9,624	34	—		(6.07)	0.60	4.02	—		(43.2)	84	(15.9)	88	**14**
1,840.6	11	11,814	28	11.1	38	2.96	4.44	1.25[2]	9.0	29	(6.5)	33	21.7	21	**15**
1,078.0	33	16,650	14	—		(31.17)	6.20	3.57	—		(49.2)	87	6.6	78	**16**
1,461.2	20	18,752	12	9.6	46	2.04	3.52	1.02[3]	7.2	39	(12.7)	48	21.3	23	**17**
1,510.2	17	12,334	26	11.0	41	2.03	2.53	0.70	11.2	21	(16.7)	58	16.8	53	**18**
1,585.4	16	13,900	21	5.4	59	1.23	3.95	1.33	(0.8)	55	(0.3)	16	16.4	55	**19**
1,794.4	13	20,284	8	15.8	5	2.55	2.53	0.53	16.9	5	(16.4)	57	21.9	18	**20**
1,673.7	15	20,047	11	16.9	2	2.17	1.86	0.47[4]	16.6	6	(6.2)	32	19.0	43	**21**
1,397.0	21	9,400	35	3.6	63	0.73	3.42	1.20	(4.9)	58	(11.9)	45	15.0	59	**22**
1,463.0	19	15,000	18	10.9	43	2.10	5.07	1.75**	1.8	52	(18.4)	59	21.0	25	**23**
981.9	35	13,900	20	—		N.A.	7.19	1.58	—		—		—		**24**
827.0	40	10,400	32	—		(10.83)	6.83	2.58	—		(0.6)	17	19.4	40	**25**
1,311.3	25	18,743	13	15.2	10	3.31	2.91	0.55	19.8	2	(7.0)	37	23.5	11	**26**
1,350.8	23	11,753†	29	11.9	34	3.47	3.87	1.60	8.0	34	16.0	6	20.8	27	**27**
1,113.6	32	10,219	33	8.7§	51	2.97‡	4.97	1.65	6.1	43	(30.7)	76	17.0	51	**28**
1,325.4	24	3,700	83	1.3	69	0.11‡	4.44	1.32	(22.0)	66	(20.9)	63	27.4	2	**29**
1,304.8	26	14,358	19	16.7	3	3.67	3.48	1.40	10.1	25	3.8	14	21.2	24	**30**
1,177.7	29	13,300	23	—		(1.31)	3.64	2.97	—		6.3	11	11.0	73	**31**
1,202.5	28	13,244	24	13.1	24	2.52	2.63	(0.27)	—		(1.2)	20	21.9	19	**32**
847.9	39	10,943	30	—		(6.46)	(2.21)	2.08	—		(76.5)	89	(12.0)	87	**33**
1,297.8	27	13,213	25	13.6	22	3.24	3.59	1.01[5]	12.4	16	(5.0)	29	19.6	38	**34**
1,489.5	18	13,865	22	14.0	17	1.98	2.08	0.65	11.8	19	8.5	9	20.9	26	**35**
1,158.7	30	10,681	31	13.9	18	4.40	5.58	1.09	14.9	11	(14.7)	54	23.1	13	**36**
942.3	36	7,831	41	15.6§	6	5.19	4.99	1.31	14.7	12	(6.6)	34	20.6	31	**37**
1,070.5	34	7,703	42	15.2	11	3.91	2.94‡	1.04	14.2	13	(2.6)	22	24.7	8	**38**
874.6	38	9,076	36	11.1	39	2.34‡	3.44	1.61	3.8	50	(0.9)	19	16.0	56	**39**
899.1	37	8,991	37	12.1	32	2.65	2.56	1.29	7.4	37	(11.7)	44	10.9	75	**40**
713.4	44	7,620	43	5.4	60	1.14	3.00	0.76	4.1	49	(21.8)	64	15.3	58	**41**
647.0	47	5,729	55	—		N.A.	N.A.	N.A.	—		—		—		**42**
725.3	43	8,541	38	11.0	42	2.25	2.93	1.24	6.2	41	(0.9)	18	20.6	30	**43**
409.0	69	4,771	68	—		N.A.	N.A.	N.A.	—		24.6	4	—		**44**
580.2	55	7,913	39	—		(2.25)	4.97	1.71	—		(27.6)	74	12.6	67	**45**
(574.5)	100	7,148	44	—		(34.62)	(12.70)	1.91	—		(87.9)	92	(27.7)	89	**46**
576.2	56	6,025	50	4.1	62	0.85	3.53	1.28	(4.0)	57	(22.7)	65	19.4	41	**47**
706.9	45	4,882	67	6.0	58	6.39	10.22	4.49	3.6	51	—		—		**48**
740.8	42	5,987	53	—		(0.24)	2.14	1.28	—		(8.2)	39	14.3	63	**49**
751.5	41	6,254	47	13.7	21	2.31	2.17	0.75	11.9	18	(2.9)	23	23.3	12	**50**

[3] Figure is for Pittsburgh National.
[4] Figure is for CBT.
[5] Figure is for Sun Banks.
[6] Figure is for Wachovia.
[7] Figure is for American Bank & Trust.

[8] Figures reflect merger with Texas Commerce Bancshares (No. 29 among last year's Commercial Banks) May 1, 1987.
[9] Formed by the merger of RepublicBank Corp. (No. 26 among last year's Commercial Banks) and Interfirst Corp. (No. 32 last year) June 8, 1987.

[10] Formed by the merger of Fidelcor (No. 43 among last year's Commercial Banks) and First Fidelity Bancorp. (No. 34 last year) February 29, 1988.
[11] Figures reflect acquisition of Hartford National Corp. (No. 38 among last year's Commercial Banks) February 29, 1988.

THE 100 LARGEST
COMMERCIAL BANKING COMPANIES

RANK BY ASSETS		COMPANY	ASSETS[1]	DEPOSITS		LOANS[2]		PROFITS	
1987	1986		$ Millions	$ Millions	Rank	$ Millions	Rank	$ Millions	Rank
51	50	**COMERICA** Detroit	10,116.0	8,402.7	47	5,852.5	54	71.4	29
52	51	**BOATMEN'S BANCSHARES** St. Louis	9,884.9	7,389.6	54	5,289.2	62	81.4	24
53	57	**CRESTAR** Richmond[18]	9,740.0	7,356.0	55	7,332.0	46	56.7	36
54	68	**FIRST AMERICAN BANKSHARES** Washington, D.C.	9,618.0	7,662.9	51	5,776.8	55	51.2	40
55	59	**NORTHERN TRUST CORP.** Chicago	9,325.7	6,846.2	61	3,729.5	74	(65.1)	83
56	58	**RAINIER BANCORP.** Seattle[19]	9,250.6	6,927.4	59	6,686.1	49	55.3	37
57	62	**MANUFACTURERS NATIONAL CORP.** Detroit	9,077.3	7,234.8	57	5,530.2	57	6.6	71
58	61	**SOCIETY CORP.** Cleveland	9,077.3	7,280.3	56	5,641.2	56	90.9	20
59	65	**HUNTINGTON BANCSHARES** Columbus, Ohio	8,835.9	6,601.8	63	5,206.7	63	47.8	44
60	64	**FIRST OF AMERICA BANK CORP.** Kalamazoo, Mich.	8,679.9	7,554.5	53	5,344.2	59	78.3	26
61	67	**BAYBANKS** Boston	8,506.3	7,176.3	58	6,337.0	51	69.4	31
62	66	**MICHIGAN NATIONAL CORP.** Farmington Hills, Mich.	8,481.1	6,861.3	60	5,931.4	52	73.9	28
63	72	**MERIDIAN BANCORP** Reading, Pa.	8,388.6	6,609.9	62	5,505.3	58	75.3	27
64	81	**DOMINION BANKSHARES** Roanoke, Va.	7,601.8	5,819.1	66	5,318.5	61	70.6	30
65	71	**FLORIDA NATIONAL BANKS OF FLORIDA** Jacksonville	7,555.9	5,949.5	65	4,506.7	66	32.5	56
66	80	**AMSOUTH BANCORP.** Birmingham, Ala.	7,527.1	5,718.4	67	4,843.6	64	60.2	34
67	70	**FIRST WISCONSIN CORP.** Milwaukee	7,256.7	5,951.7	64	4,519.7	65	(49.1)	80
68	69	**STATE STREET BOSTON CORP.** Boston	6,955.2	4,537.9	76	2,096.5	98	83.1	23
69	75	**RIGGS NATIONAL CORP.** Washington, D.C.	6,787.9	5,226.0	72	3,329.4	82	1.0	73
70	74	**MERCANTILE BANCORP.** St. Louis	6,765.9	5,433.6	68	4,497.4	67	(24.5)	77
71	79	**FIRST AMERICAN CORP.** Nashville	6,494.1	5,075.1	73	3,757.3	73	47.8‡	45
72	85	**OLD KENT FINANCIAL CORP.** Grand Rapids, Mich.	6,455.1	5,413.1	69	3,765.0	70	63.4	32
73	83	**BANK OF TOKYO TRUST** New York[20]	6,406.8	5,361.4	71	3,468.6	79	10.5	70
74	73	**EUROPEAN AMERICAN BANCORP** New York[21]	6,406.1	4,467.4	81	3,760.1	72	(110.5)	85
75	77	**CALIFORNIA FIRST BANK** San Francisco[16]	6,062.5	5,372.1	70	4,140.1	68	40.1	50
76	93	**SOUTHTRUST CORP.** Birmingham, Ala.	5,924.0	4,702.4	75	3,533.7	77	60.4	33
77	95	**BANCORP HAWAII** Honolulu	5,826.3	4,917.6	74	3,326.6	83	53.9	38
78	82	**FIRST PENNSYLVANIA CORP.** Philadelphia	5,803.5	4,136.1	85	3,592.5	76	(53.9)	81
79	86	**FIRST TENNESSEE NATIONAL CORP.** Memphis	5,761.8	4,477.3	79	3,530.3	78	32.8	55
80	87	**FIRST MARYLAND BANCORP** Baltimore	5,644.2	4,095.3	87	3,760.2	71	45.3	47
81	76	**MARSHALL & ILSLEY CORP.** Milwaukee	5,555.8	4,318.8	83	3,039.5	88	57.9	35
82	97	**UNITED BANKS OF COLORADO** Denver	5,503.4	4,370.2	82	3,016.9	89	0.7	74
83	●	**TRUSTCORP** Toledo	5,501.1	4,300.5	84	3,655.9	75	12.0	69
84	92	**INDIANA NATIONAL CORP.** Indianapolis	5,458.8	3,959.7	90	3,325.4	84	27.1	59
85	●	**BANCO POPULAR DE PUERTO RICO** San Juan	5,352.7	4,491.6	78	2,708.8	91	37.5	53
86	90	**COMMERCE BANCSHARES** Kansas City, Mo.	5,269.3	4,469.3	80	2,636.5	92	40.1	51
87	84	**CENTERRE BANCORP.** St. Louis	5,242.1	4,010.1	89	2,878.3	90	15.1**	67
88	78	**TEXAS AMERICAN BANCSHARES** Fort Worth	5,170.5	4,511.0	77	3,837.5	69	(78.0)	84
89	91	**FIRST KENTUCKY NATIONAL CORP.** Louisville	5,132.4	3,750.1	92	3,199.3	86	32.4‡	57
90	94	**FIRST SECURITY CORP.** Salt Lake City	5,073.7	3,862.8	91	3,354.1	81	27.0	60
91	●	**EQUITABLE BANCORP.** Baltimore	5,060.8	3,309.9	96	2,420.3	94	40.7	49
92	96	**FIRST FLORIDA BANKS** Tampa	4,927.3	4,089.5	88	3,162.5	87	48.3	43
93	99	**SOUTH CAROLINA NATIONAL CORP.** Columbia	4,918.5	3,451.1	95	3,383.0	80	52.9	39
94	●	**HIBERNIA CORP.** New Orleans	4,846.6	4,128.6	86	3,227.0	85	46.5	46
95	98	**PREMIER BANCORP** Baton Rouge, La.[17]	4,349.0	3,674.1	93	2,313.7	96	(18.4)	76
96	●	**MARINE CORP.** Milwaukee	4,312.8	3,598.2	94	2,611.3	93	21.3	62
97	●	**CENTRAL BANCSHARES OF THE SOUTH** Birmingham, Ala.	3,873.9	2,441.9	100	2,251.2	97	33.5	54
98	●	**FIRST COMMERCE CORP.** New Orleans	3,744.1	2,894.9	98	1,810.4	99	19.2	64
99	●	**UNITED MISSOURI BANCSHARES** Kansas City	3,549.6	3,100.3	97	1,264.8	100	32.3	58
100	●	**EQUIMARK CORP.** Pittsburgh	3,140.0	2,588.1	99	2,341.6	95	14.3**	68
		TOTALS	2,026,851.9	1,424,824.0		1,263,744.6		(5,310.4)	

● Not on last year's list.

** Reflects an extraordinary credit of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

† Average for the year; see the reference to "employees" on page D37.

‡ Reflects an extraordinary charge of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

§ Dividends paid on mandatory redeemable preferred stock subtracted from net income.

N.A. Not available.

[12] Formed by the merger of Maryland National Corp. (No. 54 among last year's Commercial Banks) and American Security Capital March 16, 1987.

[13] Wholly owned by Standard Chartered Bank (No. 63 among last year's Largest International Banks).

STOCKHOLDERS' EQUITY		EMPLOYEES		NET PROFITS AS PERCENT OF EQUITY		EARNINGS PER SHARE					TOTAL RETURN TO INVESTORS				RANK
$ Millions	Rank	Number	Rank	%	Rank	1987/$	1986/$	1977/$	1977-87 annual growth rate %	Rank	1987 %	Rank	1977-87 annual average %	Rank	1987
593.0	54	6,014	51	12.0	33	4.13	3.63	2.29	6.1	42	27.5	3	17.7	49	**51**
636.7	48	5,400[6]	58	12.8	26	4.14	4.00	1.77	8.9	30	(6.7)	35	18.1	47	**52**
597.0	53	5,739	54	9.5	47	1.92	2.92	0.80	9.2	27	(19.8)	61	21.7	20	**53**
650.7	46	5,715	56	7.9	53	2.34	N.A.	N.A.	—		—		—		**54**
436.4	65	5,291	60	—		(4.77)	3.24	1.70	—		(6.0)	31	18.6	45	**55**
623.0	50	5,372	59	8.9	50	N.A.	3.41	1.64	—		—		—		**56**
497.0	60	5,156	62	1.3	68	0.45	5.27	2.38	(15.3)	63	(1.7)	21	20.4	33	**57**
618.8	52	5,993	52	14.7	14	3.75	3.43	1.83	7.4	38	19.2	5	19.1	42	**58**
511.7	58	5,195	61	9.3§	48	1.58	2.41	0.92	5.6	45	(8.8)	40	20.1	35	**59**
631.7	49	7,075	45	12.4	29	5.93	5.47	1.89	12.1	17	3.2	15	—		**60**
500.1	59	5,684	57	13.9	20	4.85	4.10	1.09	16.1	7	4.3	13	26.1	4	**61**
514.5	57	6,600	46	14.4	16	4.85	3.59	3.05	4.7	48	28.0	2	13.6	64	**62**
621.7	51	6,124	48	12.1	31	2.07	2.48	1.17[7]	5.9	44	(15.2)	56	22.1	15	**63**
459.7	63	4,969	64	15.4	8	2.10	2.01	0.94	8.4	31	(3.6)	25	16.5	54	**64**
455.4	64	4,883	66	7.1	56	1.22	1.30	0.57	8.0	35	(26.9)	72	14.3	62	**65**
483.2	61	4,448	70	12.5	27	2.63	3.13	1.21	8.1	33	(23.9)	69	16.9	52	**66**
412.5	68	6,042	49	—		(2.75)	2.53	0.79	—		(10.9)	42	19.6	37	**67**
471.4	62	7,890	40	17.6	1	2.23	1.97	0.09	38.2	1	(13.2)	52	39.7	1	**68**
325.6	87	2,114	98	0.3	72	0.07	2.65	1.28	(25.2)	67	(35.2)	82	15.0	60	**69**
421.7	67	4,618	69	—		(1.53)	3.57	1.73	—		(27.8)	75	12.7	66	**70**
431.3	66	3,807	79	11.1	40	2.34‡	2.79	0.83	11.0	22	(14.9)	55	20.8	28	**71**
406.2	70	3,800	80	14.5§	15	2.81	2.71	0.87	12.4	15	(7.0)	36	19.5	39	**72**
338.3	84	468	100	3.1	64	N.A.	N.A.	N.A.	—		—		—		**73**
249.3	96	2,720	93	—		N.A.	N.A.	N.A.	—		—		—		**74**
349.4	79	3,879	78	11.5	35	3.01	2.37	1.87	4.9	47	—		—		**75**
395.6	72	3,718	82	15.3	9	2.44	2.26	0.82	11.5	20	(19.7)	60	17.6	50	**76**
347.0	82	3,355†	87	15.5	7	5.73	5.07	1.76	12.5	14	(3.5)	24	20.7	29	**77**
298.8	92	3,595	85	—		(1.66;	0.68**	2.06	—		(4.2)	28	(4.5)	82	**78**
327.1	85	4,222	71	10.0	44	2.19	3.41	0.99	8.3	32	(24.9)	70	19.8	36	**79**
366.9	75	3,976†	77	12.4	30	2.65	2.23	1.11	9.1	28	(13.1)	51	17.9	48	**80**
389.4	74	4,922	65	14.9	13	3.16	2.95	1.16	10.5	24	6.1	12	22.5	14	**81**
405.4	71	4,095	74	0.2	73	(0.10)	1.95	1.93	—		(32.9)	78	6.8	77	**82**
392.8	73	4,000	76	3.1	65	0.74	2.91	1.83	(8.6)	60	(22.7)	66	11.9	70	**83**
349.3	80	2,823	92	7.7	54	2.11	3.49	0.49	15.7	8	(3.6)	26	25.1	6	**84**
301.4	90	4,050	75	12.5	28	3.75	4.03	0.66	19.0	3	(12.9)	49	25.3	5	**85**
359.8	77	3,385	86	11.1	37	3.89	3.75	1.94	7.2	40	(34.1)	81	12.8	65	**86**
338.5	83	3,682	84	4.5	61	1.94**	3.90	3.22	(4.9)	59	(11.1)	43	12.2	68	**87**
181.3	98	2,961	90	—		([illegible].05)	(10.41)	2.51	—		(77.2)	90	(11.5)	86	**88**
326.4	86	5,031	63	9.9	45	1.45‡	2.31	0.69	7.7	36	(8.0)	38	20.2	34	**89**
365.2	76	4,104	73	7.4	55	2.21	0.41	2.78	(2.3)	56	(3.8)	27	5.0	80	**90**
300.5	91	3,050	89	13.5§	23	2.19	2.13	0.87	9.7	26	(12.9)	50	22.0	17	**91**
347.7	81	3,757	81	13.9	19	3.02	2.97	0.57	18.1	4	(23.7)	68	24.9	7	**92**
353.7	78	4,107	72	15.0	12	2.44	2.05	0.57	15.6	9	(13.8)	53	24.3	9	**93**
287.7	93	2,268	97	16.2	4	2.45	2.15	0.59	15.4	10	7.5	10	26.2	3	**94**
301.5	89	3,121	88	—		(0.75)	(0.26)	0.58	—		(5.1)	30	—		**95**
304.6	88	2,887	91	7.0	57	2.52	4.61	2.30	0.9	53	41.9	1	23.6	10	**96**
259.5	95	2,484	95	12.9	25	1.57	1.73	0.93	5.4	46	(33.3)	79	14.6	61	**97**
213.0	97	2,313	96	9.0	49	1.51	0.05	1.42	0.6	54	8.7	8	11.3	71	**98**
283.3	94	2,488	94	11.4	36	2.55	2.45	0.93	10.7	23	14.8	7	21.6	22	**99**
164.5	99	1,616	99	8.7	52	0.31**	0.09	2.45	(18.7)	64	(37.1)	83	(10.3)	85	**100**
101,859.1		1,049,097													

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[14] Wholly owned by National Westminster Bank (No. 17 among last year's Largest International Banks).

[15] Wholly owned by a subsidiary of Bank of Montreal (No. 46 among last year's Largest International Banks).

[16] Company is 77% owned by Bank of Tokyo.

[17] Name changed from Louisiana Bankshares April 15, 1987.

[18] Name changed from United Virginia Bankshares September 1, 1987.

[19] Wholly owned by Security Pacific Corp. (No. 6).

[20] Wholly owned by Bank of Tokyo (No. 21 among l[illegible]ear's Largest International Banks).

[21] Wholly owned by six European banks, all of which were ranked last year on FORTUNE's list of the [illegible]argest International Banks.

THE 50 LARGEST

DIVERSIFIED FINANCIAL COMPANIES

RANK BY ASSETS 1987	1986	COMPANY	ASSETS[1] $ Millions	REVENUES[2] $ Millions	Rank	PROFITS $ Millions	Rank	STOCKHOLDERS' EQUITY $ Millions	Rank
1	2	**AMERICAN EXPRESS** New York	**116,434.0**	**17,768.0**	2	**533.0**	5	**4,554.0**	5
2	1	**FEDERAL NAT'L MORTGAGE ASS'N** Washington, D.C.	**103,459.0**	**10,078.0**	7	**376.0**	9	**1,811.0**	14
3	3	**SALOMON** New York	**74,747.0**	**6,003.0**	12	**142.0**	32	**2,781.0**	8
4	4	**AETNA LIFE & CASUALTY** Hartford	**72,754.3**	**22,114.1**	1	**920.6**	2	**6,084.8**	1
5	5	**MERRILL LYNCH** New York	**55,192.6**	**10,868.2**	6	**390.6**	8	**3,330.9**	6
6	6	**CIGNA** Philadelphia	**53,495.2**	**16,909.3**	4	**728.3**	3	**5,223.0**	3
7	8	**TRAVELERS CORP.** Hartford	**50,164.7**	**17,459.1**	3	**374.4**	10	**4,794.5**	4
8	7	**FIRST BOSTON** New York	**36,147.6**	**-1,322.3**	35	**108.9**	36	**1,062.1**	27
9	9	**MORGAN STANLEY GROUP** New York	**29,662.6**	**3,147.9**	23	**230.9**	20	**1,137.4**	24
10	12	**AMERICAN INTERNATIONAL GROUP** New York	**27,907.7**	**11,278.3**	5	**1,042.0**	1	**5,785.8**	2
11	10	**BEAR STEARNS COS.** New York[3]	**25,247.2**	**1,774.0**	29	**173.1**	27	**938.2**	29
12	20	**FLEET/NORSTAR FINANCIAL GROUP** Providence[4]	**24,530.6**	**2,535.8**	26	**185.1**	23	**1,676.9**	17
13	16	**TRANSAMERICA** San Francisco	**23,318.6**	**7,174.6**	9	**427.2**	7	**2,624.6**	9
14	14	**STUDENT LOAN MARKETING ASS'N** Washington, D.C.	**22,863.5**	**1,668.1**	30	**181.0**	24	**459.5**	42
15	13	**LOEWS** New York	**22,209.2**	**9,323.7**	8	**696.2**	4	**3,252.3**	7
16	15	**LINCOLN NATIONAL** Fort Wayne	**18,003.9**	**6,960.1**	10	**236.9**	18	**2,197.1**	12
17	19	**HOUSEHOLD INTERNATIONAL** Prospect Heights, Ill.	**16,958.8**	**3,440.5**	19	**221.5**	21	**1,009.7**	28
18	•	**PRIMERICA** Greenwich, Conn.[5]	**13,217.1**	**3,761.8**	15	**198.6**	22	**1,302.7**	22
19	17	**PAINE WEBBER GROUP** New York[4]	**12,956.2**	**2,437.0**	28	**72.0**	40	**1,092.6**	26
20	18	**CONTINENTAL** New York	**12,151.4**	**6,731.2**	11	**233.7**	19	**2,558.0**	11
21	21	**KEMPER** Long Grove, Ill.	**10,741.5**	**3,668.6**	17	**251.4**	17	**1,548.0**	18
22	•	**CAPITAL HOLDING** Louisville, Ky.	**10,385.6**	**3,351.1**	22	**172.1**	29	**1,243.3**	23
23	23	**USF&G** Baltimore	**10,141.2**	**4,826.1**	13	**372.8**	11	**1,724.2**	15
24	22	**FIREMAN'S FUND** Novato, Calif.	**9,602.0**	**3,927.0**	14	**362.0**	12	**1,511.0**	20
25	24	**GENERAL RE** Stamford, Conn.	**9,437.8**	**3,448.4**	18	**510.8**	6	**2,563.2**	10
26	28	**CHUBB** Warren, N.J.	**8,609.4**	**3,714.4**	16	**330.1**	14	**1,953.4**	13
27	25	**ST. PAUL COS.** St. Paul	**8,398.9**	**3,365.8**	20	**356.5**	13	**1,711.4**	16
28	26	**AMERICAN FINANCIAL** Cincinnati	**7,835.9**	**2,707.8**	24	**126.7**	33	**110.6**	48
29	29	**RELIANCE GROUP HOLDINGS** New York	**7,179.8**	**3,363.2**	21	**125.9**	34	**309.9**	46
30	30	**AON** Chicago[7]	**7,084.2**	**185.1**	50	**156.2**	31	**1,130.2**	25
31	27	**BENEFICIAL** Wilmington, Del.	**6,929.2**	**1,241.5**	36	**174.6**	26	**810.3**	32
32	31	**SAFECO** Seattle	**6,615.3**	**2,592.5**	25	**253.0**	16	**1,435.4**	21
33	32	**HOME GROUP** New York	**6,439.8**	**2,495.4**	27	**172.2**	28	**901.0**	30
34	33	**INTEGRATED RESOURCES** New York	**6,252.5**	**1,110.7**	39	**51.6**	43	**520.3**	39
35	41	**LOMAS & NETTLETON FINANCIAL** Dallas[6]	**5,564.9**	**632.4**	43	**45.4**	44	**668.0**	33
36	•	**KAUFMAN & BROAD** Los Angeles[8]	**5,385.3**	**1,518.0**	32	**57.3**	42	**340.5**	45
37	35	**BARCLAYSAMERICANCORP.** Charlotte, N.C.	**4,330.0**	**576.7**	44	**27.7**	46	**557.7**	37
38	•	**COMMERCIAL CREDIT** Baltimore	**4,306.4**	**912.3**	41	**23.7**	47	**646.4**	34
39	36	**FARMERS GROUP** Los Angeles	**3,462.4**	**1,132.9**	37	**268.3**	15	**1,327.7**	19
40	39	**SOUTHMARK** Dallas[6]	**3,294.5**	**868.2**	42	**85.2**	38	**860.6**	31
41	34	**DCNY** New York	**3,029.0**	**276.8**	47	**30.1**	45	**130.8**	47
42	37	**GEICO** Washington, D.C.	**2,845.8**	**1,580.2**	31	**177.9**	25	**634.7**	35
43	38	**OLD REPUBLIC INTERNATIONAL** Chicago	**2,797.7**	**1,094.5**	40	**102.8**	37	**517.3**	40
44	40	**OHIO CASUALTY** Hamilton	**2,682.4**	**1,444.9**	33	**78.6**	39	**615.7**	36
45	42	**ALEXANDER & ALEXANDER SERVICES** New York	**2,609.7**	**1,118.7**	38	**68.4**	41	**389.4**	44
46	43	**SECURITY CAPITAL** New York[9]	**2,365.3**	**235.4**	49	**(28.1)**	49	**29.4**	50
47	44	**HANOVER INSURANCE COS.** Worcester, Mass.	**2,299.2**	**1,411.1**	34	**112.0**	35	**529.6**	38
48	•	**LANDMARK LAND** Carmel, Calif.	**2,134.4**	**263.4**	48	**(47.5)**	50	**35.6**	49
49	46	**UNITED STATES LEASING INTERNATIONAL** San Francisco[10]	**1,961.4**	**486.0**	45	**20.5**	48	**510.0**	41
50	•	**ARGONAUT GROUP** Los Angeles	**1,846.6**	**425.6**	46	**170.8**	30	**405.0**	43
		TOTALS	**977,989.5**	**216,729.5**		**12,080.9**		**79,546.8**	

• Not on last year's list.

•• Reflects an extraordinary credit of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

† Average for the year; see the reference to "employees" on page D37.

‡ Reflects an extraordinary charge of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

§ Dividends paid on mandatory redeemable preferred stock subtracted from net income.

N.A. Not available.

[1] Total assets shown as of December 31, 1987, unless otherwise noted. Only assets of consolidated subsidiaries are included. Holding companies engaged in commercial banking; savings; or life, health, and accident insurance are listed here only when assets of those businesses represent less than 80% of the company's total.

[2] Total revenues during the year, including any consolidated or

THE SERVICE 500

EMPLOYEES		PROFITS AS PERCENT OF STOCKHOLDERS' EQUITY		EARNINGS PER SHARE					TOTAL RETURN TO INVESTORS				RANK
							1977-87 annual growth rate		1987		1977-87 annual average		
Number	Rank	%	Rank	1987/$	1986/$	1977/$	%	Rank	%	Rank	%	Rank	1987
84,278	1	11.7	35	1.20	2.77	0.91	2.8	29	(17.2)	25	14.3	28	1
2,500	43	20.8	12	4.66	2.49	2.77	5.3	25	(24.4)	30	10.9	34	2
8,000	28	5.1	45	0.86	3.45	0.94	(0.9)	33	(48.0)	45	17.1	18	3
43,900	4	15.0§	28	7.95	9.12	5.25	4.2	28	(15.8)	21	12.8	31	4
43,600	5	11.7	34	3.58	4.30	0.63	19.1	5	(36.9)	39	15.3	23	5
48,427	3	13.5§	32	8.64	9.92	5.51	4.6	26	(16.7)	23	7.2	36	6
33,373	7	7.8	41	3.56	5.52	3.00	1.7	32	(16.9)	24	14.7	25	7
5,535	36	10.3	38	3.12	5.14	0.23	29.6	1	(39.6)	40	27.3	4	8
6,517	31	20.3	15	8.99	8.42	N.A.	—		(20.0)	27	—		9
30,000†	8	18.0	20	6.34	4.90	1.04	19.8	3	(1.5)	13	19.1	14	10
5,700	34	18.5	19	2.02	1.54	N.A.	—		(32.0)	37	—		11
17,500	14	11.0	36	1.82	2.58	0.72	9.8	14	1.0	11	25.5	6	12
17,600	13	16.3	25	5.47	3.57	2.53	8.0	20	0.5	12	13.8	29	13
1,194	47	36.9§	4	4.14	3.08	N.A.	—		7.2	7	—		14
23,900	10	21.4	8	8.92	6.69	1.86	17.0	6	16.0	4	32.7	2	15
14,375	18	10.3§	37	5.19	6.12	2.75	6.6	23	(9.5)	19	15.3	24	16
22,029	11	20.9§	10	5.57	4.48‡	2.90	6.7	22	(13.5)	20	15.7	22	17
24,800†	9	13.7§	31	3.35	3.21	2.74	2.0	30	(40.3)	41	9.4	35	18
12,900†	19	6.6	43	2.17	2.51	0.98	8.3	19	(53.7)	47	16.2	21	19
17,700	12	8.8§	40	3.69	7.42	4.61	(2.2)	34	(8.3)	16	11.9	33	20
16,600	15	16.1§	27	4.12	3.40**	1.66	9.5	16	(16.3)	22	17.7	15	21
8,200	27	13.8	29	3.35	5.25	1.15	11.3	11	(9.3)	17	14.4	27	22
10,000	22	20.7§	13	3.63	4.43	3.01	1.9	31	(23.8)	28	14.5	26	23
12,352	20	24.0	6	5.71	3.45	N.A.	—		(25.8)	32	—		24
2,412	44	19.9	16	5.04	3.22	2.01	9.6	15	2.5	10	20.5	10	25
9,800	23	16.9	24	7.93	7.05	2.81	10.9	12	(3.1)	15	19.3	12	26
10,574	21	20.8	11	7.45	4.75**	3.20	8.8	17	18.4	3	16.6	20	27
52,800	2	77.0§	1	N.A.	N.A.	N.A.	—		—		—		28
9,461	24	40.6	3	1.68	0.50‡	N.A.	—		(25.2)	31	—		29
9,200	25	13.8§	30	2.36	3.70	1.36	5.6	24	(9.3)	18	17.6	16	30
6,600	30	20.5§	14	7.09	(8.30)	3.64	6.9	21	(34.8)	38	12.7	32	31
8,500	26	17.6	21	3.75	3.39	1.33	10.9	13	7.2	8	21.2	8	32
7,500	29	19.1	18	4.82	4.59**	N.A.	—		(42.4)	44	—		33
3,752	39	9.9	39	2.73	(1.73)	0.30	24.7	2	(24.1)	29	19.6	11	34
4,000	38	6.8	42	1.49	2.19	0.38	14.5	8	(40.7)	43	23.9	7	35
2,100	45	16.2§	26	1.83	1.47**	0.42	15.8	7	22.9	2	20.7	9	36
3,171	41	5.0	46	N.A.	N.A.	N.A.	—		—		—		37
3,700	40	3.7	48	0.48	1.17	N.A.	—		10.1	6	—		38
15,508	17	17.6	23	3.88	3.09	1.04	14.1	9	6.7	9	17.2	17	39
39,359	6	5.9§	44	1.09	1.54	N.A.	—		(40.5)	42	—		40
386	50	23.0	7	3.74	3.07	(0.15)	—		(29.0)	34	36.3	1	41
6,172	32	28.0	5	10.67	12.61	2.96**	13.7	10	13.4	5	32.5	3	42
4,600	37	19.9	17	5.09	3.38‡	2.24	8.6	18	(17.2)	26	13.1	30	43
5,900	33	12.8	33	3.48	4.54	2.29	4.3	27	(2.9)	14	17.0	19	44
16,481	16	17.6	22	1.62	1.05	2.02	(2.2)	35	(30.2)	36	1.2	37	45
1,035	48	—		(5.03)	(1.52)	(0.02)‡	—		(51.4)	46	(2.4)	38	46
5,678	35	21.1	9	5.43	4.70	0.95	19.1	4	(26.0)	33	19.3	13	47
3,000	42	—		(5.96)	1.26	0.14**	—		(29.9)	35	26.6	5	48
1,761	46	4.0	47	N.A.	3.97	2.52	—		—		—		49
947	49	42.2	2	14.59	1.95	N.A.	—		41.67	1	—		50
684,691													

FINANCIAL

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non-financial revenues from manufacturing, retailing, etc., and revenues from discontinued operations when published. All companies on the list must have derived more than 50% of their revenues from financial businesses and have a publicly traded stock.

[3] Figures are for fiscal year ended April 30, 1987.

[4] Formed by the merger of Fleet Financial Group (No. 20 on last year's Diversified Financial list) and Norstar Bancorp (No. 44 on last year's Commercial Banks list), January 1, 1988.

[5] Company was No. 2 on last year's Diversified Service list.

[6] Figures are for fiscal year ended June 30, 1987.

[7] Name changed from Combined International Corp., April 23, 1987.

[8] Figures are for fiscal year ended November 30, 1987.

[9] Figures are for fiscal year ended September 30, 1987.

[10] Company was acquired by Ford Motor, No. 3 on the FORTUNE 500 Industrial list, on November 10, 1987.

THE 50 LARGEST

SAVINGS INSTITUTIONS

RANK BY ASSETS		COMPANY	ASSETS[1]	DEPOSITS[2]		LOANS		PROFITS	
1987	1986		$ Millions	$ Millions	Rank	$ Millions	Rank	$ Millions	Rank
1	1	**FINANCIAL CORP. OF AMERICA** Irvine, Calif.	**33,864.2**	**16,682.9**	3	**29,075.6**	1	**(468.0)**	50
2	3	**H. F. AHMANSON** Los Angeles	**30,507.3**	**22,432.7**	1	**24,310.0**	3	**200.2**	1
3	2	**GREAT WESTERN FINANCIAL CORP.** Beverly Hills, Calif.	**28,631.4**	**19,974.2**	2	**25,158.0**	2	**125.3**	5
4	4	**CALFED** Los Angeles	**24,582.5**	**16,089.8**	4	**17,531.0**	4	**166.9**	2
5	5	**MERITOR FINANCIAL GROUP** Philadelphia	**19,016.5**	**12,915.4**	5	**16,611.7**	5	**(395.8)**	49
6	6	**GLENFED** Glendale, Calif.[3]	**18,925.5**	**12,782.6**	6	**13,214.1**	6	**148.7**	3
7	7	**GREAT AMERICAN FIRST SAVINGS BANK** San Diego	**15,242.2**	**10,639.9**	8	**9,461.7**	11	**88.1**	10
8	●	**GOLDOME** Buffalo	**15,153.4**	**11,033.8**	7	**10,116.9**	10	**16.7**	35
9	9	**GIBRALTAR FINANCIAL CORP.** Beverly Hills, Calif.	**14,983.1**	**7,558.3**	15	**6,072.2**	16	**(131.1)**	48
10	10	**HOME FEDERAL SAVINGS & LOAN ASS'N** San Diego	**14,109.1**	**10,5[illegible]**	9	**12,387.9**	7	**103.0**	8
11	14	**CROSSLAND SAVINGS** New York	**13,774.6**	**7,748.0**	14	**11,616.2**	8	**100.1**	9
12	8	**GOLDEN WEST FINANCIAL CORP.** Oakland	**12,835.5**	**8,427.4**	11	**11,151.2**	9	**146.9**	4
13	15	**COAST SAVINGS & LOAN ASS'N** Los Angeles	**11,952.0**	**8,624.9**	10	**9,420.2**	12	**57.1**	13
14	11	**FIRST FEDERAL OF MICHIGAN** Detroit	**11,882.6**	**5,202.5**	20	**4,571.5**	24	**33.4**	18
15	13	**COLUMBIA SAVINGS & LOAN ASS'N** Beverly Hills, Calif.	**11,227.3**	**7,176.0**	16	**1,894.9**	49	**119.3**	6
16	18	**DIME SAVINGS BANK OF NEW YORK** Garden City	**10,944.2**	**8,093.5**	12	**9,345.6**	13	**113.6****	7
17	16	**IMPERIAL CORP. OF AMERICA** San Diego	**10,874.5**	**7,023.4**	18	**6,178.9**	15	**51.3**	14
18	17	**EMPIRE OF AMERICA FEDERAL SAVINGS** Buffalo	**10,856.0**	**7,996.6**	13	**6,647.3**	14	**12.7**	39
19	12	**CITYFED FINANCIAL CORP.** Palm Beach, Fla.	**10,810.8**	**7,089.1**	17	**6,058.1**	17	**13.2**	38
20	22	**CENTRUST SAVINGS BANK** Miami[4]	**7,772.2**	**4,691.9**	21	**2,699.9**	43	**61.5****	12
21	●	**ANCHOR SAVINGS BANK** Hewlett, N.Y.	**7,404.1**	**6,295.1**	19	**5,342.8**	18	**64.1****	11
22	20	**UNITED FINANCIAL GROUP** Houston	**7,146.7**	**3,241.5**	33	**4,933.5**	20	**(118.0)**	47
23	26	**ATLANTIC FINANCIAL FEDERAL** Bala Cynwyd, Pa.[4]	**7,017.6**	**3,983.3**	25	**4,421.1**	26	**24.1**	28
24	29	**NORTHEAST SAVINGS** Hartford[5]	**6,264.7**	**3,714.0**	26	**5,131.5**	19	**33.3**	21
25	23	**WESTERN SAVINGS & LOAN ASS'N** Phoenix	**6,052.3**	**4,469.4**	22	**3,542.7**	30	**33.4**	20
26	21	**CARTERET SAVINGS & LOAN ASS'N** Morristown, N.J.[4]	**5,910.2**	**4,358.8**	23	**4,521.5**	25	**33.4**	19
27	19	**TCF BANKING & SAVINGS** Minneapolis	**5,858.3**	**3,369.8**	31	**4,878.4**	21	**(71.8)‡**	46
28	42	**COMMERCIAL FEDERAL CORP.** Omaha[3]	**5,764.3**	**3,113.5**	34	**4,736.6**	22	**17.7**	34
29	28	**AMERICAN CAPITAL CORP.** Miami	**5,752.7**	**3,407.4**	29	**2,910.7**	36	**.2**	44
30	25	**WASHINGTON MUTUAL SAVINGS BANK** Seattle	**5,707.6**	**3,493.3**	28	**2,984.4**	35	**40.0**	16
31	24	**HOMESTEAD FINANCIAL CORP.** Burlingame, Calif.	**5,512.9**	**2,736.9**	39	**1,917.2**	48	**24.7**	26
32	27	**FLORIDA FEDERAL S&L ASS'N** St. Petersburg[3]	**5,408.7**	**3,514.3**	27	**2,991.1**	34	**(43.9)‡**	45
33	31	**FINANCIAL CORP. OF SANTA BARBARA** Santa Barbara, Calif.	**5,347.1**	**2,251.9**	48	**4,687.6**	23	**2.8**	42
34	30	**AMERICAN CONTINENTAL CORP.** Phoenix	**5,095.2**	**3,374.5**	30	**1,170.2**	50	**19.3**	31
35	33	**HOWARD SAVINGS BANK** Newark, N.J.	**4,880.6**	**4,204.0**	24	**3,325.6**	32	**31.9**	17
36	32	**PERPETUAL SAVINGS BANK** Alexandria, Va.[6]	**4,567.4**	**3,249.8**	32	**2,456.5**	45	**19.2**	32
37	35	**AMERIFIRST FEDERAL S&L ASS'N** Miami[4]	**4,537.3**	**2,895.7**	36	**2,728.1**	40	**10.9**	40
38	34	**PACIFIC FIRST FINANCIAL CORP.** Tacoma	**4,508.6**	**2,539.5**	42	**3,899.9**	27	**24.4‡**	27
39	36	**OLD STONE CORP.** Providence	**4,424.8**	**2,874.2**	37	**3,766.6**	28	**14.2****	37
40	39	**SEAMEN'S CORP.** New York	**4,124.1**	**2,372.0**	46	**3,615.4**	29	**18.3**	33
41	37	**AMERICAN SAVINGS BANK** New York	**4,052.7**	**2,993.9**	35	**3,245.7**	33	**45.8****	15
42	41	**CITADEL HOLDING CORP.** Glendale, Calif.	**3,829.5**	**2,566.9**	41	**3,330.6**	31	**26.5**	25
43	43	**FAR WEST FINANCIAL** Newport Beach, Calif.	**3,719.5**	**2,835.2**	38	**2,589.0**	44	**4.5**	41
44	38	**WESTERN CAPITAL INVESTMENT** Denver	**3,607.1**	**2,324.7**	47	**2,827.3**	38	**.3**	43
45	44	**SOCIETY FOR SAVINGS** Hartford	**3,557.6**	**2,716.8**	40	**2,705.2**	42	**31.3**	23
46	40	**FARM & HOME SAVINGS ASS'N** Nevada, Mo.	**3,495.1**	**2,412.6**	45	**2,814.0**	39	**19.7**	30
47	49	**VALLEY FEDERAL S&L ASS'N** Van Nuys, Calif.	**3,324.6**	**2,436.7**	44	**2,903.8**	37	**16.5**	36
48	●	**ROCHESTER COMMUNITY SAVINGS BANK** Rochester, N.Y.	**3,272.4**	**2,088.1**	49	**2,293.1**	47	**27.0****	24
49	●	**DOWNEY SAVINGS & LOAN ASS'N** Costa Mesa, Calif.	**3,177.1**	**2,526.2**	43	**2,350.1**	46	**33.2****	22
50	48	**GREAT LAKES BANCORP** Ann Arbor, Mich.	**3,138.8**	**1,654.6**	50	**2,718.8**	41	**20.2**	29
		TOTALS	**474,404.2**	**306,761.9**		**335,762.0**		**989.5**	

● Not on last year's list.

** Reflects an extraordinary credit of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

‡ Reflects an extraordinary charge of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

§ Dividends paid on mandatory redeemable preferred stock subtracted from net income.

N.A. Not available.

[1] As of December 31, 1987. All companies on the list must have derived more than 80% of their assets from chartered thrift institutions and have a publicly traded stock.

[2] Net of unearned discount and loan loss reserve. Figure includes lease financing.

THE SERVICE 500

STOCKHOLDERS' EQUITY		EMPLOYEES		NET PROFITS AS PERCENT OF EQUITY		EARNINGS PER SHARE					TOTAL RETURN TO INVESTORS				RANK
									1977-87 annual growth rate		1987		1977-87 annual average		
$ Millions	Rank	Number	Rank	%	Rank	1987/$	1986/$	1977/$	%	Rank	%	Rank	%	Rank	1987
(163.4)	50	5,918	5	—		(13.29)	2.25	0.31	—		(85.0)	44	0.7	10	**1**
1,799.7	2	10,526	2	11.1	26	2.03	3.22	1.52	3.0	5	(20.2)	14	15.4	4	**2**
1,851.9	1	11,547	1	6.8	36	1.67	2.81	1.32	2.4	6	(15.0)	12	13.7	6	**3**
1,258.5	3	6,000†	4	13.3	20	6.67	7.03	N.A.	—		(32.7)	26	—		**4**
569.1	11	5,200	8	—		(11.29)	0.65**	N.A.	—		(43.0)	36	0.5	11	**5**
894.9	5	8,000	3	16.6	9	6.81	4.11**	N.A.	—		(6.6)	6	—		**6**
615.5	9	3,839	12	14.3	17	3.68	4.18	N.A.	—		(25.2)	20	—		**7**
451.3	13	5,329	6	3.7	40	N.A.	N.A.	N.A.	—		—		—		**8**
196.7	31	2,925	15	—		(6.36)	2.66	1.98	—		(66.7)	42	(5.4)	13	**9**
846.4	6	4,171	9	12.2	23	4.82	4.87	N.A.	—		(20.8)	16	—		**10**
949.0	4	3,485	13	10.6	29	5.28	6.34**	N.A.	—		(21.3)	17	—		**11**
792.1	7	2,760	17	18.5	5	4.69	5.89	1.24	14.2	3	(27.9)	23	22.2	2	**12**
443.3	14	2,395	19	12.9	21	4.34	3.84	N.A.	—		27.6	2	—		**13**
389.9	16	1,750	31	8.6	32	3.01	6.58‡	N.A.	—		(59.6)	40	—		**14**
613.6	10	975	42	19.5	2	3.04	5.40	N.A.	—		(38.9)	30	—		**15**
670.8	8	4,100	11	16.9	7	5.03**	N.A.	N.A.	—		(8.0)	8	—		**16**
267.9	26	1,751	30	19.2	3	3.46	3.41	3.94	(1.3)	7	(41.8)	35	(1.8)	12	**17**
216.2	29	4,100	10	5.9	38	0.46	4.24**	N.A.	—		(39.1)	31	—		**18**
359.2	17	5,200	7	3.7	41	0.24	1.57	N.A.	—		—		—		**19**
399.5	15	1,486	34	15.4	13	4.70**	6.97**	N.A.	—		(24.5)	19	—		**20**
505.4	12	3,350	14	16.6	8	N.A.	N.A.	N.A.	—		—		—		**21**
(41.9)	49	590	49	—		(14.53)	(4.55)	N.A.	—		(75.0)	43	—		**22**
202.8	30	2,117	22	11.9	24	4.89	3.39	N.A.	—		(20.0)	13	—		**23**
312.7	22	1,840	25	10.6	27	5.58	7.07	N.A.	—		(20.4)	15	—		**24**
116.4	44	2,765	16	28.7	1	2.22	1.80	0.58	14.4	2	(49.3)	38	20.4	3	**25**
290.3	23	1,800	27	11.5	25	2.52	3.83**	N.A.	—		11.5	3	—		**26**
140.6	40	2,100	23	—		(10.08)‡	3.00	N.A.	—		—		—		**27**
118.5	43	1,435	35	15.0§	16	2.69	3.16	N.A.	—		(47.0)	37	—		**28**
115.5	45	2,210	20	0.2	43	(0.19)	0.55	(1.01)	—		(35.5)	29	9.6	9	**29**
316.9	20	1,861	24	12.6	22	2.67	4.74	N.A.	—		(6.1)	5	—		**30**
151.7	38	987	41	16.3	11	1.96	2.51	0.28	21.3	1	(33.5)	27	—		**31**
181.0	36	1,800	28	—		(4.68)‡	(6.99)	N.A.	—		(64.4)	41	—		**32**
41.9	48	900	44	6.6§	37	0.39	3.16	2.52	(17.0)	10	(56.5)	39	(5.4)	14	**33**
136.8	41	1,790	29	14.1	18	0.72	1.01	N.A.	—		(7.1)	7	26.8	1	**34**
334.3	18	1,535	32	10.4	30	2.41	1.75	N.A.	—		8.2	4	—		**35**
269.0	25	1,500	33	7.1	35	1.10	1.20	N.A.	—		(33.6)	28	—		**36**
193.7	32	2,400	18	5.6	39	N.A.	N.A.	N.A.	—		—		—		**37**
229.7	27	1,317	37	10.6	28	3.25‡	3.14	N.A.	—		(26.5)	22	—		**38**
188.9	34	2,179	21	7.5	34	0.83**	3.32	2.87	(11.7)	9	(30.4)	24	11.3	8	**39**
97.4	47	400	50	18.8	4	1.10	1.89	N.A.	—		(32.6)	25	—		**40**
327.7	19	1,055	39	14.0§	19	6.75	6.11**	N.A.	—		(8.7)	9	—		**41**
172.6	37	813	45	15.4	14	7.72	8.43	N.A.	—		(39.1)	32	—		**42**
142.7	39	750	46	3.2	42	0.54	3.01	0.80	(3.9)	8	(26.4)	21	13.1	7	**43**
286.6	24	1,833	26	0.1§	44	0.03	(0.77)	N.A.	—		(14.7)	11	—		**44**
190.0	33	750	47	16.5	10	2.91	2.15	N.A.	—		(40.2)	33	—		**45**
218.2	28	719	48	9.0	31	2.77	3.07	N.A.	—		(12.1)	10	—		**46**
110.2	46	1,344	36	15.0	15	2.45	2.75	N.A.	—		48.9	1	—		**47**
315.0	21	1,200	38	8.6	33	1.95**	3.00	N.A.	—		—		—		**48**
185.3	35	1,050	40	17.9	6	3.10**	5.36	0.82	14.2	4	(40.2)	34	14.0	5	**49**
128.3	42	927	43	15.8	12	5.16	5.67	N.A.	—		(24.2)	18	—		**50**
19,399.6		136,774													

[3] Figures are for fiscal year ended June 30, 1987.
[4] Figures are for fiscal year ended September 30, 1987.
[5] Figures are for fiscal year ended March 31, 1987.
[6] Figures are for fiscal year ended October 31, 1987.

THE 50 LARGEST
LIFE INSURANCE COMPANIES

RANK BY ASSETS		COMPANY	ASSETS[1]	PREMIUM AND ANNUITY INCOME[2]		NET INVESTMENT INCOME	
1987	1986		$ Millions	$ Millions	Rank	$ Millions	Rank
1	1	**PRUDENTIAL OF AMERICA** Newark, N.J.*	108,815.2	14,049.4	1	6,805.7	2
2	2	**METROPOLITAN LIFE** New York*	88,140.1	13,963.8	2	6,897.8	1
3	3	**EQUITABLE LIFE ASSURANCE** New York*	49,288.2	5,501.8	5	2,741.7	5
4	4	**AETNA LIFE** Hartford[7]	45,684.6	7,964.1	3	3,170.8	3
5	6	**TEACHERS INSURANCE & ANNUITY** New York	33,210.4	3,059.7	11	3,134.1	4
6	5	**NEW YORK LIFE** New York*	31,843.7	5,596.0	4	2,474.9	6
7	8	**TRAVELERS** Hartford[8]	28,595.5	3,826.6	8	2,276.3	7
8	7	**JOHN HANCOCK MUTUAL LIFE** Boston*	27,354.9	4,403.1	6	2,089.7	8
9	9	**CONNECTICUT GENERAL LIFE** Bloomfield[9]	26,785.5	2,761.0	13	1,622.6	9
10	10	**NORTHWESTERN MUTUAL LIFE** Milwaukee*	22,602.9	3,626.3	9	1,554.5	10
11	11	**MASSACHUSETTS MUTUAL LIFE** Springfield*	19,879.3	2,509.8	15	1,482.5	12
12	12	**PRINCIPAL MUTUAL LIFE** Des Moines*	19,027.7	3,985.5	7	1,518.4	11
13	14	**MUTUAL OF NEW YORK** New York*	14,757.8	3,126.9	10	1,071.4	14
14	13	**NEW ENGLAND MUTUAL LIFE** Boston*	14,204.3	2,703.7	14	1,018.7	15
15	15	**EXECUTIVE LIFE** Los Angeles	11,400.3	1,077.0	37	1,134.8	13
16	16	**MUTUAL BENEFIT LIFE** Newark*	10,096.0	2,020.7	18	891.0	16
17	17	**CONNECTICUT MUTUAL LIFE** Hartford*	9,932.3	2,131.4	16	683.4	19
18	19	**IDS LIFE** Minneapolis[10]	8,963.4	1,536.9	26	650.6	20
19	18	**STATE FARM LIFE** Bloomington, Ill.	8,453.5	1,348.7	29	739.7	18
20	20	**VARIABLE ANNUITY LIFE** Houston	7,770.7	885.9	38	645.2	21
21	21	**NATIONWIDE LIFE** Columbus, Ohio	7,299.0	1,133.6	36	428.1	27
22	25	**NEW YORK LIFE & ANNUITY** Wilmington, Del.	7,123.1	1,759.5	22	571.8	22
23	24	**PACIFIC MUTUAL LIFE** Newport Beach, Calif.*	6,981.4	1,627.2	23	502.0	23
24	22	**AETNA LIFE & ANNUITY** Hartford	6,612.7	1,244.0	32	364.7	30
25	29	**EQUITABLE VARIABLE LIFE** New York	6,606.2	1,835.2	20	448.6	26
26	28	**LINCOLN NATIONAL PENSION** Fort Wayne[14]	6,326.3	1,519.5	27	124.8	50
27	23	**CONTINENTAL ASSURANCE** Chicago[11]	6,137.6	2,078.4	17	193.7	48
28	38	**ALLSTATE LIFE** Northbrook, Ill.[12]	5,972.3	2,936.9	12	405.8	28
29	26	**SOUTHWESTERN LIFE** Dallas	5,799.2	762.0	41	279.3	39
30	31	**TRANSAMERICA LIFE & ANNUITY** Los Angeles[13]	5,533.2	1,576.8	25	494.0	24
31	32	**PROVIDENT NATIONAL ASSURANCE** Chattanooga	5,241.6	1,226.1	33	471.6	25
32	30	**PHOENIX MUTUAL LIFE** Hartford*	5,200.5	850.7	40	329.3	33
33	34	**TRANSAMERICA OCCIDENTAL LIFE** Los Angeles[13]	5,012.1	1,445.6	28	335.2	32
34	27	**LINCOLN NATIONAL LIFE** Fort Wayne[14]	4,932.1	1,612.6	24	124.8	49
35	33	**NORTHWESTERN NATIONAL LIFE** Minneapolis[15]	4,715.5	1,278.8	30	199.1	47
36	36	**STATE MUTUAL OF AMERICA** Worcester, Mass.*	4,375.7	1,251.3	31	376.9	29
37	39	**GENERAL AMERICAN LIFE** St. Louis*	4,369.5	1,165.7	35	328.9	34
38	40	**GUARDIAN OF AMERICA** New York*	4,169.5	1,975.9	19	806.0	17
39	42	**MUTUAL OF AMERICA LIFE** New York*	4,167.5	552.4	46	293.0	37
40	35	**UNUM LIFE** Portland, Me.	4,144.8	514.3	47	343.6	31
41	37	**PENN MUTUAL LIFE** Philadelphia*	4,099.5	640.4	45	279.3	40
42	41	**MINNESOTA MUTUAL LIFE** St. Paul*	4,005.3	874.4	39	300.4	36
43	43	**FRANKLIN LIFE** Springfield, Ill.[16]	3,961.7	723.8	44	307.0	35
44	44	**KEMPER INVESTORS LIFE** Chicago[17]	3,932.8	754.4	43	285.6	38
45	46	**WESTERN & SOUTHERN LIFE** Cincinnati	3,909.1	403.8	50	223.8	46
46	●	**KEYSTONE PROVIDENT LIFE** Providence, R.I.[9]	3,835.7	759.5	42	274.4	41
47	●	**PROVIDENT LIFE & ACCIDENT** Chattanooga	3,648.4	1,821.0	21	260.8	43
48	45	**NATIONAL LIFE** Montpelier, Vt.*	3,590.9	486.4	48	226.7	45
49	50	**HOME LIFE** New York*	3,541.5	1,212.4	34	246.8	44
50	47	**AMERICAN GENERAL LIFE** Nashville	3,472.4	416.2	49	274.1	42
		TOTALS	735,523.2	122,516.9		52,703.9	

DATA FOR ALL COMPANIES ARE CALCULATED ON THE STATUTORY ACCOUNTING BASIS REQUIRED BY STATE INSURANCE REGULATORY AUTHORITIES.

● Not on last year's list.

* Indicates a mutual company.

N.A. Not available.

[1] As of December 31, 1987.

[2] Includes premium income from life, accident, and health policies, annuities, and contributions to deposit administration funds.

[3] After dividends to policyholders and federal income taxes, excluding capital gains and losses. Figures in parentheses indicate a loss.

[4] Face value of all life policies, including variable life insurance, as of December 31, 1987.

[5] Change between December 31, 1986, and December 31, 1987.

THE SERVICE 500

NET GAIN FROM OPERATIONS[3]			LIFE INSURANCE IN FORCE[4]		INCREASE IN LIFE INSURANCE IN FORCE[5]				EMPLOYEES[6]		RANK
$ Millions	Mutual Rank	Stock Rank	$ Millions	Rank	$ Millions	Rank	%	Rank	Number	Rank	1987
930.2	1		644,896.7	1	42,502.9	2	7.1	28	66,167	1	1
359.9	2		569,446.2	2	50,031.6	1	9.6	21	36,200	2	2
147.7	4		313,217.5	3	22,019.1	5	7.6	26	26,000	4	3
197.9		4	221,008.6	4	7,889.3	13	3.7	31	17,235	10	4
206.0		3	19,217.8	31	1,951.8	27	11.3	16	3,065	34	5
137.1	5		209,647.5	5	22,851.1	4	11.0	17	20,270	7	6
62.8		7	161.2	39	10.0	35	—		33,373	3	7
165.8	3		177.4	38	10.9	34	—		16,435	11	8
232.0		1	131,536.4	7	10,687.3	11	8.8	23	12,187	13	9
20.1	11		157,594.2	6	20,515.5	6	15.0	10	8,303	18	10
22.3	10		86.2	43	9.6	36	—		11,405	14	11
66.1	6		79,535.6	12	7,340.2	14	10.2	19	10,184	15	12
32.8	8		68,070.1	16	7,018.3	15	12.2	15	9,337	17	13
(73.5)	24		62.6	45	2.7	37	—		7,332	20	14
13.4		18	53,370.9	18	7,917.3	12	17.4	7	850	43	15
35.4	7		58.0	47	2.2	38	—		4,594	24	16
13.5	14		51,645.6	19	3,906.7	20	8.2	24	23,198	5	17
46.4		11	18,746.1	32	2,823.5	22	15.2	9	6,626	21	18
99.7		6	119,968.4	8	14,004.2	10	13.2	12	18,698	8	19
21.0		14	2.9	49	(.3)	41	—		1,309	40	20
15.8		16	20,741.9	30	1,506.9	28	8.0	25	6,548	22	21
(42.5)		23	43,973.8	20	4,838.5	18	12.4	14	20,270	6	22
9.7	16		32,790.3	22	2,094.2	26	6.8	29	3,105	33	23
(42.7)		24	25,233.1	26	2,966.1	21	13.3	11	3,472	30	24
(117.2)		26	73,069.3	13	16,250.5	9	28.6	4	N.A.		25
24.1		13	130.0	41	23.4	32	22.0	6	1,567	39	26
58.1		8	63,670.9	17	5,039.5	17	7.3	27	13,823	12	27
(87.0)		25	87,427.5	11	19,776.4	7	29.2	3	17,633	9	28
180.2		5	42,275.8	21	(4,163.7)	48	—		1,100	42	29
(4.4)		20	115.7	42	(280.0)	45	—		1,193	41	30
18.5		15	N.A.		N.A.		—		75	48	31
14.3	13		69,491.4	15	4,029.0	19	6.2	30	3,407	31	32
51.7		10	187.0	37	22.5	33	—		4,417	25	33
14.4		17	143.5	40	(13.5)	43	—		2,820	35	34
30.4		12	60.6	46	2.1		—		9,373	16	35
11.7	15		31,368.3	23	(4,190.9)	49	—		4,269	26	36
1.5	20		104,371.8	9	19,726.4	8	23.3	5	2,799	36	37
7.0	17		71,885.9	14	6,095.7	16	9.3	22	3,149	32	38
1.5	21		2,349.2	35	(125.0)	44	—		800	44	39
(25.6)	22		3,494.3	33	(730.8)	46	—		3,912	27	40
2.2	19		23,086.3	29	(879.1)	47	—		2,494	38	41
3.3	18		66.0	44	(4.1)	42	—		675	45	42
55.7		9	25,690.0	24	2,273.4	25	9.7	20	3,806	28	43
9.4		19	1,225.0	36	391.3	30	39.1	2	461	46	44
32.5	9		28.0	48	.9	40	—		N.A.		45
(9.0)		21	2,695.2	34	371.6	31	16.0	8	214	47	46
(22.0)		22	93,314.0	10	34,154.3	3	57.7	1	5,880	23	47
(45.5)	23		25,461.7	25	2,508.3	24	10.9	18	3,649	29	48
16.3	12		24,524.4	27	2,761.4	23	12.7	13	2,538	37	49
208.9		2	23,201.5	28	747.7	29	3.3	32	7,901	19	50
3,108.1			3,550,521.8		336,686.8				464,118		

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[6] Includes home office, field force, and full-time agents.

[7] Wholly owned by Aetna Life & Casualty (No. 4 on the Diversified Financial list).

[8] Wholly owned by Travelers Corp. (No. 7 on the Diversified Financial list).

[9] Wholly owned by CIGNA (No. 6 on the Diversified Financial list).

[10] Wholly owned by American Express (No. 1 on the Diversified Financial list).

[11] Wholly owned by Loews (No. 15 on the Diversified Financial list).

[12] Wholly owned by Sears Roebuck (No. 1 on the Retail list).

[13] Wholly owned by Transamerica (No. 13 on the Diversified Financial list).

[14] Wholly owned by Lincoln National (No. 16 on the Diversified Financial list).

[15] Company is both stock (64% of assets) and mutual (36%).

[16] Wholly owned by American Brands (No. 65 on the FORTUNE 500 Industrial list).

[17] Wholly owned by Kemper (No. 21 on the Diversified Financial list).

THE 50 LARGEST
RETAILING COMPANIES

RANK BY SALES		COMPANY	SALES[1]	ASSETS		PROFITS		STOCKHOLDERS' EQUITY	
1987	1986		$ Millions	$ Millions	Rank	$ Millions	Rank	$ Millions	Rank
1	1	**SEARS ROEBUCK** Chicago[2]	48,439.6	74,991.3	1	1,649.4	1	13,587.6	1
2	2	**K MART** Troy, Mich.	25,626.6	11,106.0	2	692.2	2	4,409.0	2
3	3	**SAFEWAY STORES** Oakland, Calif.[2]	18,301.3	4,917.5	11	(495.4)	50	(461.8)	50
4	4	**KROGER** Cincinnati[2]	17,659.7	4,397.5	13	246.6**	10	1,063.7	15
5	7	**WAL-MART STORES** Bentonville, Ark.	15,959.3	5,131.8	10	627.6	3	2,257.3	7
6	5	**J.C. PENNEY** Dallas	15,332.0	10,842.0	3	608.0	4	4,173.0	3
7	6	**AMERICAN STORES** Salt Lake City	14,272.4	3,650.2	17	154.3	16	885.7	17
8	9	**FEDERATED DEPARTMENT STORES** Cincinnati	11,117.8	6,008.7	7	313.0	7	2,629.1	6
9	11	**DAYTON HUDSON** Minneapolis	10,677.3	6,075.5	6	228.4	13	1,986.0	8
10	10	**MAY DEPARTMENT STORES** St. Louis	10,314.0	6,181.0	5	444.0	6	2,723.0	5
11	13	**WINN-DIXIE STORES** Jacksonville, Fla.[4]	8,803.9	1,417.7	28	112.3	23	739.4	21
12	8	**SOUTHLAND** Dallas[3]	8,076.5	5,382.2	8	(66.4)	47	1,597.0	10
13	14	**GREAT ATLANTIC & PACIFIC TEA** Montvale, N.J.[5]	7,834.9	2,080.2	21	95.0	25	755.7	20
14	15	**F.W. WOOLWORTH** New York	7,134.0	3,299.0	18	251.0	9	1,716.0	9
15	12	**LUCKY STORES** Dublin, Calif.	6,924.8	1,287.9	32	151.7	17	327.3	39
16	19	**MARRIOTT** Bethesda, Md.[2]	6,522.2	5,370.5	9	223.0	14	810.8	19
17	18	**ZAYRE** Framingham, Mass.	6,186.5	2,177.5	20	143.3	19	731.3	22
18	20	**MELVILLE** Harrison, N.Y.[2]	5,930.3	2,231.1	19	285.4	8	1,458.6	12
19	17	**ALBERTSON'S** Boise, Idaho	5,869.4	1,402.1	29	125.4	22	665.2	24
20	●	**R.H. MACY** New York[7]	5,210.4	4,202.9	14	(13.8)	45	(34.3)	48
21	23	**MCDONALD'S** Oak Brook, Ill.[2]	4,893.5	6,981.6	4	596.5	5	2,916.7	4
22	●	**WICKES COS.** Santa Monica, Calif.	4,770.0¶	4,416.9	12	83.8	30	1,056.3	16
23	22	**MONTGOMERY WARD** Chicago[2,6]	4,639.0	3,729.0	16	130.0	20	1,539.0	11
24	25	**STOP & SHOP COS.** Boston	4,343.0	1,254.3	33	55.7	33	453.4	32
25	27	**WALGREEN** Deerfield, Ill.[8]	4,281.6	1,361.9	30	103.5	24	622.3	27
26	26	**PUBLIX SUPER MARKETS** Lakeland, Fla.[2]	4,152.4	1,006.5	40	87.2	28	659.4	25
27	21	**ALLIED STORES** New York[2]	3,953.1	3,924.6	15	(169.4)	49	183.9	45
28	28	**THE LIMITED** Columbus, Ohio	3,527.9	544.6	49	235.2	12	729.2	23
29	29	**TANDY** Fort Worth[4]	3,452.2	1,962.6	23	242.3	11	1,380.0	13
30	33	**PRICE** San Diego[8]	3,236.3	833.0	42	73.3	31	379.3	36
31	34	**TOYS "R" US** Rochelle Park, N.J.	3,136.6	2,027.1	22	203.9	15	1,135.3	14
32	35	**FOOD LION** Salisbury, N.C.[2]	2,953.8	805.8	44	85.8	29	339.2	38
33	24	**CARTER HAWLEY HALE STORES** Los Angeles[7]	2,869.2	1,437.2	27	(115.3)	48	(252.1)	49
34	32	**CAVENHAM (USA)** Darien, Conn.[9]	2,745.6	604.8	48	34.1	40	197.1	44
35	31	**SERVICE MERCHANDISE** Nashville[2]	2,719.1	1,552.8	25	30.9	42	306.8	41
36	30	**REVCO D.S.** Twinsburg, Ohio[10]	2,679.6¶	1,887.8	24	(59.5)	46	(22.4)	47
37	37	**GIANT FOOD** Landover, Md.[5]	2,528.5	759.4	46	46.5	38	299.9	42
38	48	**RITE AID** Shiremanstown, Pa.[5]	2,486.3	1,224.2	36	144.6**	18	571.0	29
39	36	**LOWE'S COS.** North Wilkesboro, N.C.	2,442.2	1,027.3	39	61.2	32	582.4	28
40	39	**CIRCLE K** Phoenix[11]	2,289.4	1,136.5	37	49.4	35	310.0	40
41	44	**DILLARD DEPARTMENT STORES** Little Rock, Ark.	2,206.3	1,498.2	26	91.2	27	643.4	26
42	41	**UNITED STATES SHOE** Cincinnati	2,167.6	1,100.6	38	52.1	34	518.4	31
43	40	**MERCANTILE STORES** Wilmington, Del.	2,155.7	1,345.2	31	129.6	21	872.3	18
44	43	**AMES DEPARTMENT STORES** Rocky Hill, Conn.	2,111.9	846.7	41	34.2	39	424.9	33
45	38	**BEST PRODUCTS** Richmond	2,066.6	1,239.9	34	30.5	43	402.9	34
46	47	**NORDSTROM** Seattle	1,920.2	1,234.3	35	92.7	26	533.2	30
47	46	**LONGS DRUG STORES** Walnut Creek, Calif.	1,772.5	474.0	50	49.2	36	299.8	43
48	49	**PAYLESS CASHWAYS** Kansas City[12]	1,768.1	815.2	43	28.1‡	44	379.4	35
49	●	**BROWN GROUP** St. Louis	1,678.4	683.9	47	46.9	37	355.0	37
50	●	**HILLS DEPARTMENT STORES** Canton, Mass.	1,514.3	764.9	45	32.5	41	(2.1)	46
		TOTALS	343,653.7	210,633.4		8,281.6		59,833.7	

● Not on last year's list.
¶ Includes sales from discounted operations of at least 10%.
** Reflects an extraordinary credit of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.
† Average for the year; see the reference to "employees" on page D37.
‡ Reflects an extraordinary charge of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.
§ Dividends paid on mandatory redeemable preferred stock subtracted from net income.
N.A. Not available.

[1] Net sales include operating revenues from non-retailing activities and revenues from discontinued operations when they are published. All figures are for the fiscal year ended January 31, 1988, unless otherwise noted. Sales of subsidiaries are in-

THE SERVICE 500

RETAILING

EMPLOYEES		PROFITS AS PERCENT OF				EARNINGS PER SHARE					TOTAL RETURN TO INVESTORS				RANK
		SALES		STOCKHOLDERS' EQUITY					1977-87 annual growth rate		1987		1977-87 annual average		
Number	Rank	%	Rank	%	Rank	1987/$	1986/$	1977/$	%	Rank	%	Rank	%	Rank	1987
500,327†	1	3.4	15	12.1	32	4.35	3.62	2.62	5.2	35	(12.3)	22	7.7	36	1
330,000	2	2.7	21	15.7	21	3.40	2.90	1.62	7.7	29	4.9	12	9.0	34	2
130,922	10	—		—		N.A.	N.A.	N.A.	—		—		—		3
170,000†	6	1.4	38	23.2	7	2.99**	0.55	1.12	10.3	21	(14.3)	23	19.8	20	4
183,000	4	3.9	12	27.8	3	1.11	0.79	0.05	37.0	1	12.2	8	46.0	2	5
181,000	5	4.0	11	14.6	27	4.11	3.18**	2.25	6.2	32	23.7	5	14.8	27	6
130,000	11	1.1	44	17.4	16	4.19	3.79	0.85[3]	17.2	10	(6.0)	20	22.2	16	7
135,200	9	2.8	17	11.9	33	3.40	2.97	2.04	5.2	34	(18.5)	26	10.1	33	8
130,000	12	2.1	30	11.5	34	2.41	3.19	1.26	6.7	31	(33.5)	31	13.7	29	9
143,000	8	4.3	9	16.2§	20	2.90	2.44	1.24	8.9	26	(15.6)	25	17.8	22	10
85,000	14	1.3	40	15.2	23	2.72	2.84	1.49	6.2	33	0.4	15	16.6	25	11
65,800	17	—		—		0.67	3.96	1.49	(7.7)	38	—		—		12
81,500	15	1.2	41	12.6	30	2.50	2.33	0.96**	10.0	22	61.7	2	16.3	26	13
73,000	16	3.5	13	14.6	26	3.81	3.25	1.51	9.7	25	(8.1)	21	20.6	19	14
39,000	29	2.2	27	46.3	1	3.93	4.47	1.42	10.7	20	20.2	6	14.8	28	15
213,900	3	3.4	14	27.5	4	1.67	1.40	0.20	23.8	4	3.9	13	29.9	6	16
65,000	18	2.3	25	19.6	9	2.44	1.49	0.31	22.9	5	(40.7)	37	28.9	7	17
90,500	13	4.8	8	19.6	10	5.25	4.40	1.47	13.5	18	0.9	14	18.7	21	18
43,000	26	2.1	31	18.9	13	1.88	1.50	0.41	16.5	13	19.6	7	24.3	13	19
56,000	20	—		—		N.A.	N.A.	N.A.	—		—		—		20
159,000†	7	12.2	1	20.5	8	3.14	2.49	0.67	16.8	12	9.5	10	17.3	24	21
62,637	19	1.8	34	7.9	41	1.65	1.65	13.14	(18.7)	39	(34.3)	32	(15.8)	39	22
52,300	21	2.8	18	8.4	39	N.A.	N.A.	N.A.	—		—		—		23
43,000	25	1.3	39	12.3	31	2.01	1.38	0.63	12.4	19	(15.0)	24	27.9	10	24
47,115	24	2.4	23	16.6	18	1.68	1.67	0.29	19.1	7	(3.6)	18	34.0	4	25
49,000	23	2.1	32	13.2	28	1.76	1.72	N.A.	—		—		—		26
27,000	37	—		—		N.A.	N.A.	N.A.	—		—		—		27
52,000	22	6.7	3	32.3	2	1.25	1.21	0.06	36.1	2	(45.3)	38	28.7	9	28
39,000	28	7.0	2	17.6	15	2.70	2.22	0.52	17.9	9	(19.6)	27	22.8	14	29
10,000	49	2.3	26	19.3	11	1.50	1.25	N.A.	—		—		—		30
32,700	31	6.5	4	18.0	14	1.56	1.17	N.A.	—		9.6	9	—		31
27,033	36	2.9	16	25.3	6	0.27	0.19	0.06	16.4	14	111.1	1	51.4	1	32
35,000	30	—		—		(7.20)	(1.27)	2.37	—		(35.6)	34	11.4	31	33
23,000	38	1.1	43	19.0	12	N.A.	N.A.	N.A.	—		—		—		34
21,231	41	1.1	42	10.1	37	0.93	(1.41)	0.68	3.2	36	(54.2)	39	(3.6)	38	35
28,200	33	—		—		N.A.	1.72	0.82	—		—		—		36
22,000	40	1.8	33	15.5	22	1.55	1.90	0.36	15.8	15	42.4	3	38.2	3	37
27,798	35	5.8	6	25.3	5	1.89**	1.52	0.39	17.2	11	24.4	4	24.6	12	38
14,761	47	2.5	22	10.5	36	1.54	1.34	0.66	8.8	27	(36.9)	35	8.1	35	39
20,983	44	2.2	28	14.7§	25	0.93	0.86	0.16	19.3	6	(33.2)	30	20.8	18	40
21,168	42	4.1	10	10.8§	35	2.83	2.35	0.30	25.0	3	(34.8)	33	32.8	5	41
40,145	27	2.4	24	10.1	38	1.16	0.57	0.46	9.7	23	(32.0)	29	17.5	23	42
22,000†	39	6.0	5	14.9	24	3.52	3.02	0.85	15.3	16	(1.9)	17	22.5	15	43
29,300	32	1.6	35	8.0	40	0.91	0.73	0.23	14.7	17	(55.9)	40	27.6	11	44
18,000	46	1.5	37	7.6	42	1.14	(0.95)‡	1.29	(1.2)	37	(20.0)	28	(3.5)	37	45
21,000†	43	4.8	7	17.4	17	1.13	0.91	0.20	18.9	8	(4.8)	19	28.9	8	46
12,198	48	2.8	20	16.4	19	2.33	1.78	0.92	9.7	24	5.3	11	12.2	30	47
8,560	50	1.6	36	7.4	43	0.81‡	1.22	0.39	7.6	30	(39.4)	36	10.5	32	48
28,000	34	2.8	19	13.2	29	2.63	2.17	1.24	7.8	28	(1.4)	16	21.8	17	49
20,500	45	2.1	29	—		1.31	N.A.	N.A.	—		—		—		50
3,857,778															

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cluded when they are consolidated. All companies on the list must have derived more than 50% of their revenues from retail operations.

[2] Figures are for fiscal year ended December 31, 1987.

[3] Figure is for Skaggs.

[4] Figures are for fiscal year ended June 30, 1987.

[5] Figures are for fiscal year ended February 28, 1987.

[6] Wholly owned by Mobil (No. 5 on the FORTUNE 500 Industrial list).

[7] Figures are for fiscal year ended July 31, 1987.

[8] Figures are for fiscal year ended August 31, 1987.

[9] Figures are for fiscal year ended March 31, 1987.

[10] Figures are for fiscal year ended May 31, 1987.

[11] Figures are for fiscal year ended April 30, 1987.

[12] Figures are for fiscal year ended November 30, 1987.

THE 50 LARGEST

TRANSPORTATION COMPANIES

RANK BY REVENUES		COMPANY	OPERATING REVENUES[1]	ASSETS		PROFITS[2]		STOCKHOLDERS' EQUITY	
1987	1986		$ Millions	$ Millions	Rank	$ Millions	Rank	$ Millions	Rank
1	1	**ALLEGIS** Elk Grove, Ill.[3]	11,013.0¶	8,226.3	8	335.1	5	2,922.1	8
2	2	**UNITED PARCEL SERVICE OF AMERICA** Greenwich, Conn.	9,682.2	5,801.8	10	784.2	1	3,027.5	7
3	9	**TEXAS AIR** Houston	8,475.0	8,419.1	7	(466.1)	50	500.6	19
4	5	**CSX** Richmond	8,043.0	13,231.0	1	138.0	11	5,008.0	2
5	6	**AMR** Fort Worth	7,198.0	8,423.3	6	198.4	8	2,831.1	9
6	3	**BURLINGTON NORTHERN** Seattle	6,620.9	10,948.3	3	369.3	4	3,782.8	5
7	4	**UNION PACIFIC** New York	5,943.0	10,919.0	4	583.0	2	3,761.0	6
8	7	**SANTA FE SOUTHERN PACIFIC** Chicago	5,749.7	11,762.2	2	373.5	3	5,207.9	1
9	8	**DELTA AIR LINES** Atlanta[4]	5,318.2	5,342.4	11	263.7	7	1,937.9	10
10	11	**NWA** Eagan, Minn.	5,142.2	4,219.5	14	103.0	14	1,523.1	12
11	10	**NORFOLK SOUTHERN** Norfolk, Va.	4,112.8	9,831.6	5	172.4	10	4,979.5	3
12	12	**TRANS WORLD AIRLINES** New York	4,056.4	4,224.2	13	106.2**	13	292.4	26
13	13	**PAN AM** New York	3,592.6	2,215.8	16	(265.3)	49	(244.9)	50
14	•	**CONSOLIDATED RAIL** Philadelphia	3,247.0	6,796.0	9	299.0**	6	3,825.0	4
15	14	**FEDERAL EXPRESS** Memphis[5]	3,196.0	2,499.5	15	(65.6)	48	1,078.9	13
16	17	**USAIR GROUP** Arlington, Va.	3,001.1	5,256.8	12	194.6	9	1,894.9	11
17	15	**CONSOLIDATED FREIGHTWAYS** Palo Alto, Calif.	2,296.9	1,377.3	20	74.6	16	687.9	15
18	19	**ROADWAY SERVICES** Akron	1,908.7	1,105.5	22	50.5	18	661.7	17
19	21	**AMERICAN PRESIDENT COMPANIES** Oakland	1,862.0	1,599.1	18	79.1	15	704.9	14
20	18	**YELLOW FREIGHT SYSTEM** Overland Park, Kans.	1,760.0	923.9	28	41.3	19	392.9	23
21	20	**LEASEWAY TRANSPORTATION** Beachwood, Ohio[9]	1,473.9	996.7	24	(22.6)	45	57.3	37
22	22	**TIGER INTERNATIONAL** Los Angeles	1,231.9	995.8	25	57.8**	17	20.1	47
23	26	**EMERY AIR FREIGHT** Wilton, Conn.	1,221.6	811.1	30	(47.7)	47	143.0	29
24	23	**CNW** Chicago	957.2	1,716.3	17	27.6	21	418.9	21
25	28	**SOUTHWEST AIRLINES** Dallas	778.3	1,042.6	23	20.2	25	514.3	18
26	31	**ARKANSAS BEST** Fort Smith	732.3	379.1	35	8.8	31	113.9	33
27	39	**ALASKA AIR GROUP** Seattle	709.8	705.8	31	24.7	23	271.6	27
28	37	**ALEXANDER & BALDWIN** Honolulu	655.3	981.7	26	120.4	12	492.7	20
29	30	**MAYFLOWER GROUP** Carmel, Ind.	642.8	377.8	36	5.2	36	25.4	44
30	36	**AIRBORNE FREIGHT** Seattle	632.3	355.7	37	5.9	34	124.4	31
31	34	**UNITED VAN LINES** Fenton, Mo.	631.6	162.1	45	4.4	37	34.8	42
32	32	**SOO LINE** Minneapolis	613.1	921.9	29	(8.5)	40	253.2	28
33	33	**CAROLINA FREIGHT** Cherryville, N.C.	594.9	319.8	39	8.6	32	127.2	30
34	•	**SUN CARRIERS** Media, Pa.[9,10]	584.0	293.7	40	12.4	29	25.1	45
35	45	**AMERICA WEST AIRLINES** Phoenix	575.4	572.3	32	(45.7)	46	45.9	39
36	35	**ALLIED VAN LINES** Broadview, Ill.	575.0	104.4	49	5.4	35	41.5	41
37	29	**ILLINOIS CENTRAL GULF RAILROAD** Chicago[11]	554.0	1,400.3	19	1.5	38	409.3	22
38	38	**KANSAS CITY SOUTHERN INDUSTRIES** Kansas City, Mo.	526.2	927.0	27	17.7	27	361.1	24
39	40	**PRESTON** Preston, Md.	505.4	320.5	38	6.1	33	109.4	34
40	41	**AMERICAN CARRIERS** Overland Park, Kans.	472.5	209.0	43	(15.5)	43	84.0	35
41	•	**AIR EXPRESS INTERNATIONAL** Darien, Conn.	375.3	200.1	44	10.2**	30	25.0	46
42	42	**GRAND TRUNK** Detroit	366.9	548.7	33	12.7**	28	308.7	25
43	47	**MIDWAY AIRLINES** Chicago	346.9	244.4	42	18.8**	26	75.5	36
44	44	**TRANSCON** Orange, Calif.	333.4	133.8	47	(19.9)	44	50.4	38
45	50	**HAL** Honolulu	299.1	146.5	46	(8.8)	41	13.3	49
46	46	**OVERSEAS SHIPHOLDING GROUP** New York	293.5	1,258.8	21	35.5	20	662.2	16
47	•	**J.B. HUNT TRANSPORT** Lowell, Ark.	286.4	250.3	41	26.0	22	121.3	32
48	49	**MISSOURI-KANSAS-TEXAS RAILROAD** Dallas	244.1	411.4	34	22.2	24	14.2	48
49	48	**BRANIFF** Dallas[12]	239.5	95.0	50	(9.0)	42	45.6	40
50	•	**CHEMICAL LEAMAN** Lionville, Pa.	226.6	119.5	48	1.1	39	27.0	43
		TOTALS	119,898.1	140,124.6		3,644.4		49,791.3	

• Not on last year's list.

¶ Includes sales from discontinued operations of at least 10%.

** Reflects an extraordinary credit of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

† Average for the year; see the reference to "employees" on page D37.

‡ Reflects an extraordinary charge of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

§ Dividends paid on mandatory redeemable preferred stock subtracted from net income.

N.A. Not available.

[1] Consolidated operating revenues include those from nontransportation activities and sales from discontinued operations when these are published. All figures are for the year ended

THE SERVICE 500

EMPLOYEES Number	EMPLOYEES Rank	PROFITS AS PERCENT OF SALES %	SALES Rank	STOCKHOLDERS' EQUITY %	STOCKHOLDERS' EQUITY Rank	EARNINGS PER SHARE 1987/$	1986/$	1977/$	1977-87 annual growth rate %	1977-87 annual growth rate Rank	TOTAL RETURN TO INVESTORS 1987 %	1987 Rank	1977-87 annual average %	1977-87 annual average Rank	RANK 1987
64,000†	4	3.0	20	11.5§	15	6.02	0.25	5.54**	0.8	16	38.2	2	14.7	15	1
191,600	1	8.1	7	25.9	6	4.64	3.96	N.A.	—		—		—		2
69,600	2	—		—		(12.58)	1.75**	1.48**	—		(67.8)	39	4.0	25	3
51,000	6	1.7	30	2.8§	38	0.88	2.73	1.73[4]	(6.6)	27	3.6	6	19.3	10	4
65,100	3	2.8	22	7.0	26	3.28	4.63	2.54	2.6	13	(34.3)	25	13.5	16	5
42,300†	10	5.6	10	9.7§	20	4.93	(12.07)	1.43	13.1	3	21.3	4	23.3	4	6
46,559†	8	9.8	3	14.7§	11	5.10	(4.56)	2.34	8.1	7	(10.9)	13	12.2	18	7
48,700	7	6.5	8	7.2	25	2.37	(0.84)	1.63[5]	3.8	12	58.9	1	20.4	7	8
51,054	5	5.0	12	13.6	12	5.90	1.18	2.32	9.8	5	(21.1)	20	8.9	21	9
33,724	13	2.0	29	6.8	28	3.59	3.26	4.29	(1.8)	21	(39.3)	30	6.9	23	10
36,102†	12	4.2	15	3.5	37	0.91	2.74	1.10[7]	(1.9)	22	(3.0)	9	17.7	12	11
29,919†	16	2.6	25	36.3	5	1.65**	(3.87)	N.A.	—		(17.7)	18	—		12
22,487	19	—		—		(1.91)	(3.42)	1.06	—		(35.3)	27	(5.8)	29	13
33,437†	14	9.2	4	7.8	22	4.34**	2.78	(2.66)	—		—		—		14
41,047†	11	—		—		(1.27)	2.64	0.38	—		(36.8)	29	—		15
44,760	9	6.5	9	10.3	19	5.28	3.34	2.62	7.3	9	(6.6)	12	25.3	2	16
26,300	17	3.2	19	10.8	17	1.93	2.31	2.12	(0.9)	19	(5.9)	11	17.0	14	17
30,000	15	2.6	24	7.6	24	1.26	1.91	1.14	1.0	14	(4.2)	10	10.6	20	18
3,975	38	4.2	14	11.2	16	3.42	0.71	3.51	(0.3)	18	14.5	5	—		19
25,600†	18	2.3	27	10.5	18	1.44	2.44	1.31	0.9	15	(22.9)	22	10.9	19	20
21,000	20	—		—		N.A.	2.55	2.75	—		—		—		21
6,600	29	4.7	13	287.7	1	1.55**	(1.45)	2.26	(3.7)	25	27.5	3	(2.5)	28	22
17,900	21	—		—		(2.42)	(0.28)	1.21	—		(54.9)	34	(9.3)	30	23
9,300†	25	2.9	21	6.6§	29	1.29	2.31	1.21	0.6	17	1.8	7	19.4	9	24
5,765	31	2.6	26	3.9	36	0.63	1.55	0.36	5.8	10	(34.7)	26	20.3	8	25
11,350	22	1.2	33	7.7	23	0.87	1.79	0.98	(1.2)	20	(58.6)	36	12.6	17	26
5,933	30	3.5	16	9.1	21	1.58	1.41	0.69	8.6	6	(31.9)	23	21.3	6	27
3,120	41	18.4	1	24.4	8	4.59	3.30	0.71	20.5	1	(1.1)	8	29.1	1	28
2,100	46	0.8	36	20.3	10	N.A.	N.A.	N.A.	—		—		—		29
4,394	35	0.9	34	4.7	33	0.90	2.23	1.45	(4.7)	26	(48.9)	32	3.4	26	30
962	50	0.7	37	12.8	14	N.A.	N.A.	N.A.	—		—		—		31
5,633†	32	—		—		(0.90)	(4.56)	2.48	—		(22.1)	21	6.2	24	32
10,203	23	1.4	31	6.8	27	1.30	2.53	0.63	7.5	8	(39.8)	31	22.5	5	33
8,790	26	2.1	28	49.5	3	N.A.	N.A.	N.A.	—		—		—		34
6,885	28	—		—		(3.85)	0.11**	N.A.	—		(61.5)	37	—		35
1,013	49	0.9	35	12.9	13	5.13	3.51	1.57	12.6	4	—		—		36
4,092	37	0.3	39	0.4	39	N.A.	N.A.	N.A.	—		—		—		37
4,450	34	3.4	18	4.9	32	1.82	(4.33)	1.24	3.9	11	(11.8)	14	23.6	3	38
8,262	27	1.2	32	5.6	30	1.06	1.26	1.40	(2.7)	24	(54.9)	33	1.5	27	39
9,800	24	—		—		(2.40)	1.04	N.A.	—		(55.0)	35	—		40
3,740	39	2.7	23	41.0	4	2.10**	0.98**	0.37**	19.0	2	(16.7)	17	18.4	11	41
3,678†	40	3.5	17	4.1	35	N.A.	N.A.	N.A.	—		—		—		42
2,781	43	5.4	11	25.0	7	1.71**	0.87	N.A.	—		(16.2)	16	—		43
4,128†	36	—		—		(3.39)	0.54	1.06	—		(66.2)	38	(10.5)	31	44
2,800	42	—		—		(4.57)	1.83	0.40	—		(17.9)	19	17.1	13	45
2,130	45	12.1	2	5.4	31	1.38	1.45	1.69	(2.0)	23	(14.8)	15	7.9	22	46
5,155	33	9.1	6	21.4	9	1.10	1.05	N.A.	—		(36.4)	28	—		47
2,510	44	9.1	5	155.7	2	11.36	12.81**	N.A.	—		—		—		48
1,950	48	—		—		(0.74)	1.87**	N.A.	—		(32.6)	24	—		49
2,000	47	0.5	38	4.2	34	0.99	2.16	4.16	(13.4)	28	—		—		50
1,135,688															

December 31, 1987, unless otherwise noted. All companies must derive more than 50% of their operating revenues from carrier operations and file public financial statements.

[2] Net income for all railroads has been calculated according to generally accepted accounting principles.

[3] Name changed from UAL April 30, 1987.

[4] Figure is for Seaboard Coast Lines.

[5] Figure is for Santa Fe Industries.

[6] Figures are for fiscal year ended June 30, 1987.

[7] Figure is for Norfolk & Western Railway.

[8] Figures are for fiscal year ended May 31, 1987.

[9] Figures are FORTUNE estimates.

[10] Figures are for fiscal year ended March 31, 1987.

[11] Wholly owned by IC Industries (No. 92 on the FORTUNE 500 Industrials list).

[12] Figures are for fiscal year ended January 31, 1987.

THE 50 LARGEST UTILITIES

RANK BY ASSETS 1987	1986	COMPANY	ASSETS[1] $ Millions	OPERATING REVENUES[2] $ Millions	Rank	PROFITS $ Millions	Rank	STOCKHOLDERS' EQUITY $ Millions	Rank
1	1	**GTE** Stamford, Conn.	28,745.2	15,421.0	1	1,118.9	5	8,303.3	4
2	2	**BELLSOUTH** Atlanta	27,416.5	12,269.1	2	1,664.8	1	11,978.6	1
3	3	**NYNEX** New York	22,786.3	12,084.0	3	1,276.5	2	9,196.5	2
4	5	**PACIFIC GAS & ELECTRIC** San Francisco	21,733.7	7,185.7	9	688.5	11	8,262.5	5
5	7	**SOUTHWESTERN BELL** St. Louis	21,500.2	8,002.6	8	1,047.1	7	8,191.1	6
6	4	**BELL ATLANTIC** Philadelphia	21,245.1	10,298.4	4	1,240.4	3	8,741.9	3
7	6	**PACIFIC TELESIS GROUP** San Francisco	21,056.0	9,131.2	6	950.0	9	7,890.0	7
8	10	**SOUTHERN** Atlanta	19,177.6	7,010.4	10	554.4	14	6,170.5	11
9	8	**U S WEST** Englewood, Colo.	19,095.0	8,445.3	7	1,005.5	8	7,456.3	10
10	9	**AMERICAN INFORMATION TECH.** Chicago	18,784.3	9,536.0	5	1,188.1	4	7,610.4	8
11	11	**COMMONWEALTH EDISON** Chicago	18,164.5	5,673.8	12	1,085.8	6	7,465.4	9
12	12	**MIDDLE SOUTH UTILITIES** New Orleans	15,156.8	3,454.8	24	356.6	26	4,528.1	15
13	14	**SOUTHERN CALIFORNIA EDISON** Rosemead	14,218.6	5,492.7	13	788.6	10	5,388.2	12
14	13	**AMERICAN ELECTRIC POWER** Columbus, Ohio	14,011.0	4,787.6	16	502.5	18	4,052.1	16
15	15	**TEXAS UTILITIES** Dallas	13,986.3	4,082.9	19	680.0	12	5,032.3	13
16	19	**CENTERIOR ENERGY** Independence, Ohio	11,282.7	1,945.5	43	390.4	24	3,109.1	23
17	16	**PHILADELPHIA ELECTRIC**	11,209.7	3,181.5	27	542.4	16	3,959.4	17
18	18	**DETROIT EDISON**	11,158.2	2,856.7	29	555.0	13	3,298.8	22
19	17	**PUBLIC SERVICE ENTERPRISE GROUP** Newark, N.J.	10,857.6	4,211.1	18	520.5	17	3,807.3	18
20	20	**FPL GROUP** North Palm Beach, Fla.	9,986.5	4,439.2	17	402.9	23	3,098.0	24
21	22	**HOUSTON INDUSTRIES**	9,727.7	3,628.2	22	435.0	20	3,333.4	21
22	23	**DOMINION RESOURCES** Richmond	9,656.5	3,251.2	25	430.5	21	3,018.0	25
23	21	**CONSOLIDATED EDISON OF NEW YORK**	9,384.0	5,094.4	15	550.1	15	4,602.3	14
24	25	**CMS ENERGY** Jackson, Mich.[3]	9,355.5	2,800.5	30	183.8	41	2,317.4	29
25	24	**LONG ISLAND LIGHTING** Hicksville, N.Y.	9,323.7	2,072.1	40	269.9	33	3,748.2	19
26	27	**DUKE POWER** Charlotte, N.C.	8,511.8	3,705.8	21	500.2	19	3,664.3	20
27	28	**OHIO EDISON** Akron	7,907.0	1,779.6	45	412.9	22	3,013.7	26
28	26	**ENRON** Houston	7,712.2	6,084.8	11	5.6	46	1,179.7	49
29	30	**CAROLINA POWER & LIGHT** Raleigh, N.C.	7,648.2	2,081.9	38	343.4	27	2,636.8	27
30	32	**CENTRAL & SOUTH WEST** Dallas	7,619.0	2,436.0	34	372.0	25	2,514.0	28
31	31	**PENNSYLVANIA POWER & LIGHT** Allentown	7,194.6	2,088.8	37	302.5	29	2,201.3	32
32	29	**NIAGARA MOHAWK POWER** Syracuse, N.Y.	6,794.1	2,623.4	33	(557.2)	50	2,071.5	36
33	36	**PINNACLE WEST CAPITAL** Phoenix[5]	6,701.5	1,313.4	48	284.5	32	2,291.4	30
34	37	**GULF STATES UTILITIES** Beaumont, Tex.	6,677.1	1,432.6	47	241.1	37	2,256.8	31
35	33	**NORTHEAST UTILITIES** Berlin, Conn.	6,663.8	2,080.9	39	229.1	38	2,087.5	35
36	34	**UNITED TELECOMMUNICATIONS** Westwood, Kans.	6,558.4	2,405.3	35	(51.5)	47	1,526.1	43
37	38	**GENERAL PUBLIC UTILITIES** Parsippany, N.J.	6,278.9	2,673.4	32	259.1	35	1,978.8	38
38	35	**UNION ELECTRIC** St. Louis	5,957.8	1,946.4	42	333.9	28	2,191.9	33
39	41	**ILLINOIS POWER** Decatur	5,922.7	1,219.5	50	289.6	31	2,156.6	34
40	40	**PACIFICORP** Portland, Ore.	5,726.9	2,162.5	36	266.3	34	2,013.3	37
41	42	**CONTEL** Atlanta	5,512.8	2,905.5	28	43.0	45	1,431.2	45
42	39	**COLUMBIA GAS SYSTEM** Wilmington, Del.	5,426.8	2,798.0	31	111.3	42	1,573.7	42
43	43	**MCI COMMUNICATIONS** Washington, D.C.	5,330.0	3,939.0	20	88.0	44	1,353.0	46
44	44	**TEXAS EASTERN** Houston	5,073.4	3,611.4	23	96.1	43	1,286.3	47
45	45	**PACIFIC ENTERPRISES** Los Angeles[6]	5,026.9	5,339.3	14	251.2	36	1,721.7	40
46	46	**BALTIMORE GAS & ELECTRIC**	4,510.0	1,809.2	44	300.1	30	1,924.6	39
47	49	**NEW YORK STATE ELECTRIC & GAS** Binghamton	4,487.3	1,289.6	49	(177.7)	49	1,267.0	48
48	48	**NORTHERN STATES POWER** Minneapolis	4,401.2	1,770.3	46	204.9	40	1,669.1	41
49	50	**ALLEGHENY POWER SYSTEM** New York	4,304.3	1,981.2	41	207.0	39	1,451.7	44
50	47	**TRANSCO ENERGY** Houston	4,296.9	3,242.3	26	(61.3)**	48	794.1	50
		TOTALS	**551,311.8**	**221,076.2**		**22,722.0**		**192,815.0**	

** Reflects an extraordinary credit of at least 10%; see the explanations of "profits" and "earnings per share" on page D37.

† Average for the year; see the reference to "employees" on page D37.

§ Dividends paid on mandatory redeemable preferred stock subtracted from net income.

N.A. Not available.

[1] Assets are shown as of December 31, 1987, unless otherwise noted. Only assets of consolidated subsidiaries are included.

[2] Gross receipts from operations during the 1987 fiscal year, including any non-utility revenues from manufacturing, transportation, etc., and revenues from discontinued operations when they are published. All companies on the list must have

THE SERVICE 500

EMPLOYEES Number	Rank	PROFITS AS PERCENT OF EQUITY %	Rank	EARNINGS PER SHARE 1987/$	1986/$	1977/$	1977-87 annual growth rate %	Rank	TOTAL RETURN TO INVESTORS 1987 %	Rank	1977-87 annual average %	Rank	RANK 1987
161,000	1	13.4§	17	3.29	3.53	2.61	2.4	22	(3.4)	22	14.2	23	**1**
98,700	2	13.9	11	3.46	3.38	N.A.	—		(0.3)	17	—		**2**
95,300	3	13.9	12	6.26	6.01	N.A.	—		5.8	8	—		**3**
27,300†	11	8.1§	38	1.53	2.60	1.57	(0.3)	31	(26.8)	45	14.3	22	**4**
67,085	8	12.8	24	3.48	3.42	N.A.	—		(2.5)	18	—		**5**
80,950	4	14.2	9	6.24	5.85	N.A.	—		1.6	12	—		**6**
71,877	6	12.0	31	2.21	2.51	N.A.	—		6.0	7	—		**7**
31,957	9	9.0	37	1.92	3.17	1.95	(0.2)	29	(3.5)	23	14.3	21	**8**
68,523	7	13.5	16	5.31	4.86	N.A.	—		0.6	15	—		**9**
78,510	5	15.6	2	8.47	7.87	N.A.	—		1.3	13	—		**10**
17,750	18	13.5§	13	4.73	4.69	2.86	5.2	11	(11.0)	38	11.2	32	**11**
13,739	24	7.9	39	1.74	2.21	2.18	(2.2)	32	(37.1)	49	2.4	41	**12**
17,083	19	14.1§	10	3.39	3.28	1.90	6.0	7	(3.4)	21	19.4	3	**13**
22,987	13	12.4	28	2.60	2.62	2.42	0.7	27	4.0	10	12.7	27	**14**
16,086	20	13.5	14	4.55	4.45	2.40	6.6	5	(6.6)	30	11.5	30	**15**
8,891	38	12.6	27	2.82	3.04	2.62[4]	0.7	26	(18.5)	43	10.4	34	**16**
11,366	29	12.7§	26	2.33	2.60	1.87	2.2	23	(9.1)	34	12.8	26	**17**
11,221	30	16.2§	1	3.25	2.58	2.00	5.0	14	(10.2)	37	9.8	35	**18**
13,482	25	13.5§	15	2.55	1.89	1.91	2.9	20	(3.7)	25	16.3	13	**19**
20,000	17	13.0	22	3.10	2.90	1.90	5.0	13	(3.1)	20	17.6	8	**20**
11,506	28	13.0	21	3.74	3.81	2.94	2.4	21	(5.9)	28	14.4	19	**21**
14,032	22	14.3	7	4.54	4.10	2.88	4.7	16	0.2	16	17.9	7	**22**
20,266	16	11.9§	33	4.42	4.26	2.26	6.9	4	(5.3)	27	22.8	2	**23**
9,896	33	6.8§	42	2.15	0.74	3.18	(3.8)	34	(13.6)	40	2.7	40	**24**
6,400	45	7.2	41	1.73	2.13	2.59	(4.0)	35	(29.6)	47	(2.0)	43	**25**
20,527	15	13.1§	20	4.[illegible]0	4.04	2.41	6.2	6	0.6	14	16.8	11	**26**
7,266	43	13.1§	19	2.40	2.47	1.97	2.0	24	13.4	3	13.4	24	**27**
6,922	44	(1.2)§	46	(0.86)	0.21	3.05	—		4.7	9	13.4	25	**28**
9,400	35	11.7§	34	3.83	3.96	2.61	3.9	18	(6.6)	29	14.6	17	**29**
8,894	37	14.8	4	3.92	3.75	2.00	7.0	3	(7.5)	31	16.7	12	**30**
8,301	40	11.9§	32	3.32	3.10	3.37	(0.1)	28	(2.9)	19	15.0	16	**31**
10,800	31	—		(4.78)	2.71	1.74	—		(20.3)	44	9.2	36	**32**
11,912	27	12.2§	30	3.40	3.04	3.02	1.2	25	7.3	6	14.4	18	**33**
4,824	48	10.7	35	1.65	1.71	1.69	(0.2)	30	(35.6)	48	(0.5)	42	**34**
9,354	36	10.0§	36	2.11	2.78	1.26	5.3	10	(9.8)	36	18.6	5	**35**
23,325	12	—		(0.55)	1.81	2.31	—		3.4	11	11.3	31	**36**
13,777	23	13.1	18	4.12	3.26	2.50	5.1	12	27.6	2	5.5	38	**37**
7,382	42	14.8§	5	2.91	2.89	1.67	5.7	8	(15.9)	41	16.0	14	**38**
4,616	49	12.7§	25	3.75	3.98	2.68	3.4	19	(11.2)	39	10.7	33	**39**
11,932	26	13.0§	23	3.60	3.45	2.22	5.0	15	(3.7)	24	14.3	20	**40**
21,722	14	3.0§	45	0.55	3.04	1.79	(11.1)	37	8.7	4	15.3	15	**41**
10,700	32	6.6§	43	2.30	1.82	3.74	(4.7)	36	(4.9)	26	12.5	28	**42**
14,236	21	6.5	44	0.31	(1.63)	(0.02)	—		50.0	1	27.2	1	**43**
9,800	34	7.5	40	1.80	0.02	2.51	(3.3)	33	(18.2)	42	5.2	39	**44**
27,928	10	14.6	6	4.14	1.34	2.76	4.1	17	8.2	5	19.3	4	**45**
8,767	39	14.9§	3	3.47	3.15	1.43	9.3	1	(7.8)	32	18.5	6	**46**
4,498	50	—		(3.46)	3.86	2.21	—		(26.8)	46	12.3	29	**47**
8,265	41	12.3	29	3.01	3.09	1.43	7.7	2	(8.8)	33	17.1	10	**48**
5,821	46	14.3	8	4.05	4.03	2.37	5.5	9	(9.6)	35	17.4	9	**49**
5,071	47	—		(2.75)**	(0.92)	2.84	—		(41.6)	50	7.3	37	**50**
1,271,947													

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derived more than 50% of their revenues from utility operations.

[3] Formed as a holding company for Consumers Power February 26, 1987.

[4] Figure is for Cleveland Electric Illuminating.

[5] Name changed from AZP Group April 24, 1987.

[6] Named changed from Pacific Lighting February 15, 1988.

HIGHLIGHTS

DEFINITIONS AND EXPLANATIONS

ASSETS
Assets are those shown at the company's fiscal year-end.

PROFITS
Profits are shown after taxes and after extraordinary credits or charges if any are shown on the income statement. A double asterisk (**) signifies an extraordinary credit reflecting at least 10% of the net income shown, a double dagger (‡) an extraordinary charge of at least 10%. Figures in parentheses indicate a loss. Cooperatives provide only "net margin" figures, which are not comparable, therefore N.A. is shown.

STOCKHOLDERS' EQUITY
Stockholders' equity is the sum of capital stock, surplus, and retained earnings at the company's year-end. Redeemable preferred stock is excluded if its redemption is either mandatory or outside the control of the company, except in the case of cooperatives. For purposes of calculating "profits as percent of stockholders' equity," any dividends paid on redeemable preferred stock, if that stock's redemption is either mandatory or outside the control of the company, have been subtracted from profits.

EMPLOYEES
The figure shown is a year-end total except when it is followed by a dagger (†), in which case it is an average.

EARNINGS PER SHARE
For all companies the figures shown are the primary earnings per share that appear on the company's income statement. Per-share earnings for 1986 and 1977 are adjusted for stock splits and stock dividends. They are not restated for mergers, acquisitions, or accounting changes made after 1977. A double asterisk (**) signifies an extraordinary credit reflecting at least 10% of the net income shown, a double dagger (‡) an extraordinary charge of at least 10%. Figures in parentheses indicate a loss. Results are listed as not available (N.A.) if the companies are cooperatives, joint ventures, or wholly owned subsidiaries of other companies. The growth rate is the average annual growth, compounded. No growth rate is given if the company had a loss in either 1977 or 1987.

TOTAL RETURN TO INVESTORS
Total return to investors includes both price appreciation and dividend yield to an investor in the company's stock. The figures shown assume sales at the end of 1987 of stock owned at the end of 1977 and 1986. It has been assumed that any proceeds from cash dividends, the sale of rights and warrant offerings, and stock received in spinoffs were reinvested when they were paid. Returns are adjusted for stock splits, stock dividends, recapitalizations, and corporate reorganizations as they occur; however, no effort has been made to reflect the cost of brokerage commissions or of taxes. Results are listed as not available (N.A.) if shares are not publicly traded or are traded on only a limited basis. If companies have more than one class of shares outstanding, only the more widely held and actively traded has been considered. Total return percentages shown are the returns received by the hypothetical investor described above. The ten-year figures are annual averages, compounded.

Most of the figures in the FORTUNE Service 500 Directory were prepared by reporters Charles A. Riley II and Reed Abelson. The figures on per share earnings and on total return to investors were prepared by Claudine Knight.

INDUSTRY MEDIANS

CHANGES IN SALES[1]

	INCREASES
TRANSPORTATION	11.0%
RETAILING	9.1
DIVERSIFIED SERVICE	8.3
DIVERSIFIED FINANCIAL	8.0
UTILITIES	1.7

CHANGES IN PROFITS[2, 3]

	INCREASES
RETAILING	20.9%
DIVERSIFIED FINANCIALS	14.8
DIVERSIFIED SERVICE	14.1
UTILITIES	2.4
COMMERCIAL BANKS	1.3
	DECREASES
TRANSPORTATION	13.8%
SAVINGS INSTITUTIONS	10.7

TOTAL RETURN TO INVESTORS, 1987[3]

UTILITIES	−4.3%
DIVERSIFIED SERVICE	−5.0
RETAILING	−7.0
COMMERCIAL BANKS	−12.5
DIVERSIFED FINANCIALS	−16.9
TRANSPORTATION	−21.1
SAVINGS INSTITUTIONS	−27.2
THE SERVICE 500 MEDIAN	−11.5

TOTAL RETURN TO INVESTORS 1977-87 ANNUAL AVERAGE[3]

RETAILING	20.6%
COMMERCIAL BANKS	18.7
DIVERSIFIED SERVICE	18.0
DIVERSIFED FINANCIALS	16.8
UTILITIES	14.3
SAVINGS INSTITUTIONS	13.7
TRANSPORTATION	13.5
THE SERVICE 500 MEDIAN	16.9

RETURN ON SALES[1]

	1987	1986
UTILITIES	12.0%	12.7%
DIVERSIFIED FINANCIAL	6.9	6.8
DIVERSIFIED SERVICE	3.1	2.1
TRANSPORTATION	3.0	1.6
RETAILING	2.4	2.4
THE SERVICE 500 MEDIAN	2.9	2.8

RETURN ON STOCKHOLDERS' EQUITY[3]

	1987	1986
DIVERSIFIED FINANCIAL	16.3	15.9
RETAILING	15.5	14.2
UTILITIES	12.8	13.3
DIVERSIFIED SERVICE	12.2	12.0
SAVINGS INSTITUTIONS	12.2	16.0
COMMERCIAL BANKS	11.1	12.8
TRANSPORTATION	9.7	7.7
THE SERVICE 500 MEDIAN	11.5	13.1

SALES PER DOLLAR OF STOCKHOLDERS' EQUITY[1]

RETAILING	$5.13
DIVERSIFIED SERVICE	4.13
TRANSPORTATION	3.38
DIVERSIFED FINANCIAL	2.54
UTILITIES	1.08
THE SERVICE 500 MEDIAN	3.10

SALES PER EMPLOYEE[1]

DIVERSIFED FINANCIALS	$296,021
UTILITIES	243,913
DIVERSIFIED SERVICE	211,057
TRANSPORTATION	111,938
RETAILING	95,548
THE SERVICE 500 MEDIAN	157,114

ASSETS PER EMPLOYEE

SAVINGS INSTITUTIONS	$3,384,306
COMMERCIAL BANKS	1,682,503
LIFE INSURANCE	1,654,491
DIVERSIFED FINANCIAL	1,049,879
UTILITIES	658,630
TRANSPORTATION	118,202
DIVERSIFIED SERVICE	105,573
RETAILING	42,144
THE SERVICE 500 MEDIAN	795,200

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[1] Commercial banks, savings institutions, and life insurance companies are not included. [2] Listing excludes money losers. [3] Life insurance companies are not included.

THE MONEY LOSERS

	RANK	LOSS
MAN. HAN. CORP.	B-7	$1,140,239,000
CITICORP	B-1	1,138,000,000
FST CITY BANCORP. OF TEX.	B-46	1,130,168,000*
BANKAMERICA CORP.	B-3	955,000,000*
CHASE MANHATTAN CORP.	B-2	894,793,000
MELLON BANK CORP.	B-16	863,000,000
CHEMICAL NEW YORK CORP.	B-4	853,700,000
FIRST REPUBLIC BANK CORP.	B-13	656,833,000
CONTINENTAL ILL CORP.	B-14	609,500,000
FIRST CHICAGO CORP.	B-10	570,660,000
NIAG. MOHAWK POWER	U-32	557,214,000
FIRST INTERSTATE BANCORP	B-9	556,223,000
SAFEWAY STORES	R-3	495,411,000*
FINANCIAL CORP. OF AMER.	I-1	467,963,000
TEXAS AIR	T-3	466,146,000
MARINE MIDLAND BANKS	B-24	408,765,000
MERITOR FINANCIAL GROUP	I-5	395,799,000
HENLEY GROUP	S-14	278,000,000*
PAN AM	T-13	265,291,000*
MCORP	B-33	258,293,000*
MAXICARE HEALTH PLANS	S-39	255,863,000
NAT'L WESTMIN BANK USA	B-44	212,008,000
IRVING BANK CORP.	B-25	193,300,000
NY STATE ELEC. & GAS	U-47	177,737,000
ALLIED STORES	R-27	169,380,000*
PITTSTON	S-54	133,050,000
GIBRALTAR FINANCIAL CORP.	I-9	131,068,000
VIACOM INTERNATIONAL	S-70	123,459,000*
UNITED FIN. GROUP	I-22	117,980,000
CARTER HAWLEY HALE	R-33	115,283,000
EUR AMERIC[illegible]ANCORP	B-74	110,481,000
TEX. AMER. [illegible]	B-88	78,000,000*
TCF BANKIN[illegible]	[illegible]-27	71,810,000
SOUTHLAND	[illegible]2	66,422,000
FEDERAL EXPRESS	[illegible]5	65,571,000
NORTHERN TRUST C[illegible]	B-55	65,059,000
TRANSCO ENERGY	U-50	61,311,000*
MORRISON KNUDSEN	S-37	59,535,000
REVCO D.S.	R-36	59,509,000
ALLEGHENY BEVERAGE	S-67	59,259,000
LORIMAR-TELEPICTURES	S-91	58,601,000
HOSPITAL CORP. OF AMER.	S-4	58,394,000
UNION BANCORP	B-42	55,096,000
FIRST PENN CORP.	B-78	53,918,000
UNITED TELECOMMUN	U-36	51,534,000
FIRST WISCONSIN CORP.	B-67	49,073,000
EMERY AIR FREIGHT	T-23	47,663,000*
LANDMARK LAND	I-49	47,514,000
U.S. HOME	S-89	45,676,000*
AMERICA WEST AIRLINES	T-35	45,675,000
NATIONAL INTERGROUP	S-6	44,957,000*
VALLEY NATIONAL CORP.	B-45	44,359,000
FLORIDA FED. S&L ASS'N	I-32	43,919,000*
FISCHBACH	S-65	36,047,000
BEVERLY ENTERPRISES	S-35	30,521,000
SUBARU OF AMERICA	S-40	29,972,000
NORWEST CORP.	B-31	29,800,000
SECURITY CAPITAL	F-46	28,110,000*
MERCANTILE BANCORP.	B-70	24,490,000
LEASEWAY TRANSPORT	T-21	22,592,000
TURNER	S-24	22,256,000
TRANSCON	T-44	19,915,000
PREMIER BANCORP	B-95	18,378,000*
DI GIORGIO	S-60	16,323,000
AMERICAN CARRIERS	T-40	15,500,000
R.H. MACY	R-20	13,820,000
TESORO PETROLEUM	S-56	10,990,000*
AMERITRUST CORP.	B-49	10,120,000
BRANIFF	T-49	9,022,000
HAL	T-45	8,776,136
SOO LINE	T-32	8,504,000*
GELCO	S-98	4,894,000

* Also lost money in 1986.
Life insurance companies are not included.

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FIRST NATIONAL BANCORP	B-88
FIRST NATIONAL SUPERMARKETS[1]	R-50
GATX	S-96
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* Figures in parentheses indicate year and rank the last time the company was listed.

[1] Figures are no longer made public.

[2] Acquired by another company on the Service 500.

[3] Independent financial data not available.

[4] Reclassified as an industrial.

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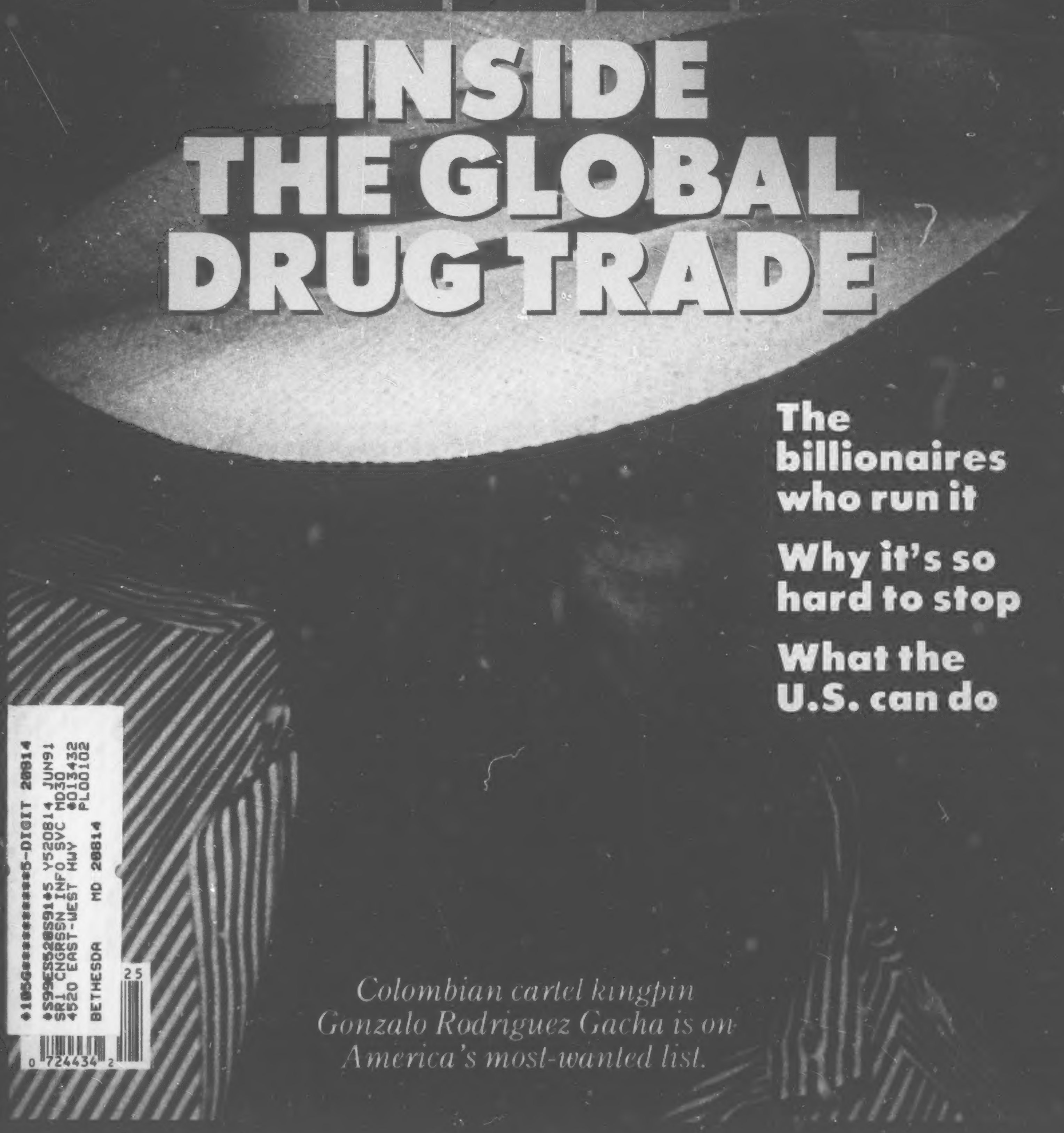
FORTUNE



INSIDE THE GLOBAL DRUG TRADE

The billionaires who run it

Why it's so hard to stop

What the U.S. can do

Colombian cartel kingpin Gonzalo Rodriguez Gacha is on America's most-wanted list.

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FORTUNE

"I'm a revolutionary leader, not a drug trafficker."

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"They got too used to perks. Mahogany paneling everywhere. See you in Boca Raton. See you at the Louvre."

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"These gigantic Japanese factories are like the battleship *Yamoto*. They can't hit anything quicker than their guns."

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"Anybody who counts the Japanese out when they hit a rough patch is kidding himself."

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"If a guy is burning out, I don't want him on my team anyway."

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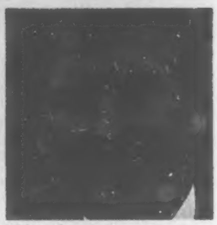

"Our inventory isn't on the shelves. It's out there on those pastures. It eats and it dies."

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THE EDITOR'S DESK

NARINART PRAPANYA

Kraar in the Golden Triangle with confiscated marijuana

WHEN pollsters recently asked them to identify the greatest problem facing the nation, Americans responded with a single word: drugs. Sadly, the problem is also a big business. Trading in illegal drugs accounts for up to half a trillion dollars of the world's GNP, and the profits are astronomical. Governments, academics, and law enforcement agents are trying to understand the business in order to stanch the worldwide traffic in heroin and cocaine.

JODI BUREN

Andrew Kupfer

In this issue's cover stories, writers Louis Kraar and Andrew Kupfer paint the picture of this industry as it has never been painted before. "Others see only the scourge," says Kraar. "We looked at drugs as a business, albeit an illegal and deadly one. That brought out a lot of new insights." For example, Kraar found that the billionaire drug barons are as savvy as any other capitalists, concerned with creating demand, expanding geographical markets, and developing new products through the classic technique of line extensions.

Over two months Kraar and Kupfer logged 25,000 miles by air, visiting six nations on four continents to interview politicians, police, bankers, doctors, social workers, addicts, and drug dealers. Kraar, who has spent 15 years in Asia for FORTUNE and *Time*, was aided by reporter J. B. Blank, who had toured the opium farms in the drug-rich Golden Triangle a year ago. Kraar picked up the trail of the narcotics traffickers in the jungles of northern Thailand and followed it to Hong Kong, a major trading and money-laundering center. From there he found his way to Medellín, Colombia, headquarters of the world's largest cocaine cartel. He was advised to get in and out of town as quickly as possible. Noting that the cartel often outguns the Colombian government and that scores of public officials have been assassinated, Kraar says: "The whole country is a victim."

The realization is growing in many other nations that they too are victims. The seeming inability to do much about that fact has spurred experts to propose solutions ranging from military repression to legalization. Andy Kupfer, along with reporter Stephen Madden, looked hard at policies around the world—visiting Britain and the Netherlands, for example—to find out what has worked and what hasn't. Kupfer's proposals on what to do about drugs will be found on page 39. We think you will find the tightly reasoned analysis enlightening.

EXECUTIVE EDITOR

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Relations and competing firms have since launched a thousand hypes. In each, a spokesman identified with a product in some peculiar way brings his message to the hinterland, visiting talk show hosts, newspaper editors, and anyone else who will listen.

"Everybody's doing it," says Ed Stanton, CEO of **Manning Selvage & Lee**. "We have a tour on the road every week. You have to come up with a soft-sell approach—they aren't commercials. For Yuban coffee, we used a chef who talks about dessert . . . and *coffee*." Stanton estimates that PR firms who specialize in consumer marketing may spend a third of their budgets on tours.

With such an important anniversary to publicize, will Edelman be hitting the road anytime soon? "I hadn't thought of it, frankly," he says. "I may take an interview or two, but I'm not going to go around. If my office said that, it's their imagination." **—Alan Farnham**

Terminal illness

■ Legislation aimed at protecting workers who use video display terminals (VDTs) may have finally found a home in Suffolk County, on New York's Long Island. If signed into law by the county executive, as many think likely, the legislation would be the first in the U.S. to regulate terminals in private businesses. The Suffolk bill requires companies with more than 20 terminals to provide adjustable furniture, special lighting, detachable keyboards, and work breaks, and to pay 80% of VDT workers' eye-care bills.

Business is booing the new law. Proponents reply that obeying such laws makes economic sense for companies, since improving the health of employees reduces sick days and medical claims. This argument raises the familiar question of why companies must be made to do what's good for them. They may find sufficient motivation in a new class of employee complaint: stress-related health claims. To help avoid them, Elizabeth Scalet, author of *VDT Health and Safety: Issues and Solutions*, recommends integrating other tasks into the VDT worker's job, involving VDT operators with other employees whose work they're entering into the computer system, and assigning certain data-processing tasks to teams rather than individuals. **—C.H.**

MICHAEL BARTALOS

How great a risk is VDT work?

AT&T vs. IBM, DEC, H-P . . .

■ In a perfect world, all computers would be compatible with all software. Until last month, **AT&T**'s missionary program to establish its Unix operating system was the only continuing effort toward that goal. Now AT&T's rivals, among them **IBM**, have started building a new road to utopia. For computer users, computer makers, and software writers, the immediate result is confusion.

The rival group calls itself the Open Software Foundation, and in addition to IBM includes **Digital Equipment Corp.**, **Hewlett-Packard**, **Apollo Computer**, and five foreign computer makers. They had grown wary of AT&T's grip on Unix, which it owns and licenses to others. Unix is the only operating system—the set of ground rules that control a computer's basic functions—available to all manufacturers for all sizes of computers. The new group aims to develop a standard based on IBM's Aix system, a variant of Unix, within 18 months and then license the product. AT&T announced no immediate plans for a counterattack.

Computer users trying to make decisions are less interested in declaring fealty to either system than in seeing one or the other unequivocally established. "In this industry, everyone has his own religion," says Stephen Dube, a stock analyst with Shearson Lehman Hutton. "Everyone knows there's one god—we just don't know which god is the real god." **—William E. Sheeline**

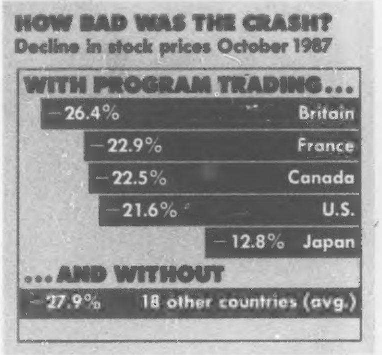
With IBM's Akers front and center, computer makers face down AT&T.

OSCAR ABOLAFIA

Was program trading the crash's hero?

■ Myriad reformers trying to figure out how to prevent another stock market crash have been working from a scenario that features program trading and portfolio insurance as the mustachioed, black-caped villains of the piece. Others (including FORTUNE) have called this a bad case of typecasting. Now a new study by a group of Chicago-school economists concludes that computer-directed trading may have been not just an innocent bystander, as its defenders heretofore claimed, but a hero of the drama.

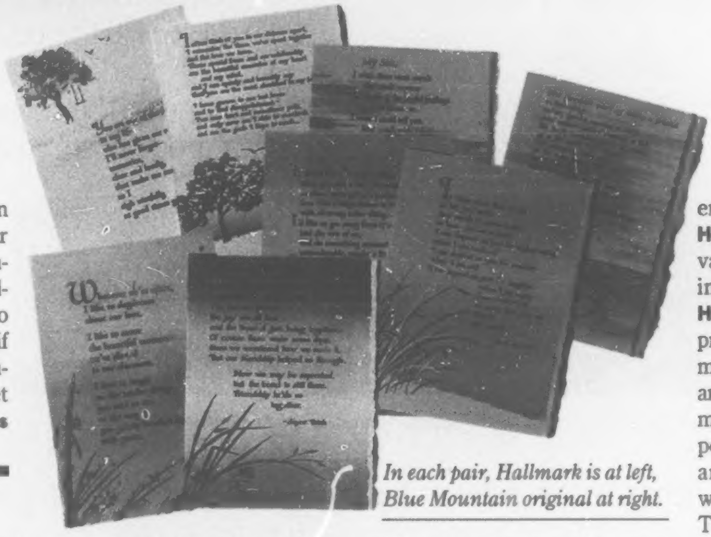
HOW BAD WAS THE CRASH?
Decline in stock prices October 1987



Program trading includes several computerized investing strategies. Relying on sometimes murky reasoning, small investors and some market analysts argue that the lightning speed of computer-directed trading triggered or exacerbated the crash.

But in *Black Monday and the Future of Financial Markets*, due this summer from Dow Jones–Irwin, UCLA economist Richard Roll points out that all 23 major world stock markets declined last October. In five of them—the U.S., Japan, Britain, Canada, and France—computer-directed trading was in wide use. The average market decline in those countries, he says, was

6.6 percentage points *less* than the average decline in the other 18 major markets. Roll's conclusion: "Computer-directed trading strategies such as portfolio insurance and index arbitrage, if they had any impact at all, actually helped mitigate the market decline." **—Monci Jo Williams**



In each pair, Hallmark is at left, Blue Mountain original at right.

Caring enough to copy the very best

■ Can little companies protect themselves from competitors who copy their products? And is there any justice in this big, bad world? Stephen and Susan Polis Schutz, a pair of hippies turned entrepreneurs, hope so.

Stephen, an artist, and Susan, a poet, are the founders of **Blue Mountain Arts**, a small, private, Colorado-based greeting card company. Sales last year were around $30 million, and *Time* magazine has proclaimed Susan, who writes some of the verses, the "reigning star" of non-occasion, high-emotion greeting cards.

Blue Mountain Arts cards are the ones decorated with round yellow suns setting over tranquil lakes—and purple mountain majesties above the fruited plain poetry. Or are they? In 1986, 16 years after Blue Mountain Arts was founded, Susan entered a local shop and encountered a new line of cards from industry giant **Hallmark** so similar to Blue Mountain's that she couldn't tell the difference. She says she ran out of the store crying, and Blue Mountain sued.

Hallmark attorney Robert J. Sisk has admitted, according to press accounts, "We copied the idea . . . we imitated it . . . we emulated it," but argues that the copycatting was legal. Late in May, Susan and Stephen and any indignant observers got some satisfaction when the Tenth Circuit Court of Appeals upheld a preliminary injunction that prevents Hallmark from distributing the disputed cards. But Hallmark has continued to distribute altered versions. Blue Mountain will seek $276 million in punitive damages. **—M.J.W.**

Takeovers roll into high tech

■ Without fanfare or battle cries, corporate raiders have invaded new territory: the computer and electronics industries. The action began soon after the crash creamed technology stocks along with all the others. Hostile bids have since resulted in seven acquisitions, ranging in value from $10.5 million to $433 million. At least four other companies have been in play without result so far, and more raids are likely in coming months.

Two types of predators are stalking the high-tech prey. Most common are technology firms eager to gain market share by acquiring competitors. In the biggest post-crash deal, **Prime Computer** grabbed **Computervision** in February to expand in computer-aided design and manufacturing. Segments of the semiconductor and software industries are also consolidating.

The second breed of raiders is more familiar: aggressive private investors. Don't look for Carl Icahn here. Rather, meet Clifford Press, 34, and Laurence Levy, 31, of **Hyde Park Holdings**. These former Harvard classmates (MBAs, 1983) in March gained control of **High Voltage Engineering**, a producer of industrial instruments, electrical components, and specialty plastics, for $135 million. "A lot of people expected us to be slash-and-burn artists," says Press. "But we're in it for the long haul." They say they'd like another high-tech buy if it would connect well with High Voltage.

The crash is only one factor in the new wave of high-tech takeovers. Another is the changing nature of the industry. Earlier, raiders might have worried about alienating software wizards and talented engineers, who could pack up and leave. But as high-tech industries mature, hatching revolutionary products is becoming less important than serving established customers and distributors, according to Dan Case, managing director of San Francisco investment bank Hambrecht & Quist. And if visionary technicians are less crucial these days, what about the leaders intent on building their companies into independent giants? That's getting tougher as more giants become established. Says Case: "Many entrepreneurs are willing to sell out because their fear-vs.-greed equation has changed." **—Alan Deutschman**

Hyde Park's Press (left) and Levy: into new takeover territory

TOBEY SANFORD

The next banks to be bagged

■ High tech isn't the only industry in which takeovers are just taking hold. In the wake of **Bank of New York**'s unfriendly bid to buy **Irving Bank**, industry analysts think more hostile bids for banks are on the way, even though government regulations complicate bank takeovers.

MERRILL LYNCH

THE STUMBLING HERD

Don Regan, who led the firm in its glory days, wonders how long it will take for his successors to get their act together. Others wonder too. Is Merrill takeover bait? ■ *by Brett Duval Fromson*

ON A WARM spring afternoon, the scent of freshly mowed grass fills the air at Merrill Lynch's Princeton, New Jersey, corporate campus. It wafts in the open office windows of Chief Executive William A. Schreyer, who, springlike, fairly exudes optimism about his company: "The future is now," says the 60-year-old Schreyer. "I intend to go out on a high. I'm not going to wiggle-waggle my way through the next five years." He predicts that over that period Merrill will earn a return on stockholders' equity of at least 15%.

A tough mark for Schreyer to hit. In four of the past five years, during a raging bull market, the company failed to achieve that 15% return. Its retail brokerage operation—the famous thundering herd that accounted for about two-thirds of Merrill's $11 billion in revenues last year—has steadily lost market share even as its profit margins eroded. The effort to build an investment banking division has had spectacular successes, an equally spectacular disaster, and a continuing inability to control costs.

The future may indeed be now, but perhaps not in the sense that Bill Schreyer intended. Mention his predictions to Donald Regan, former Secretary of the Treasury and Merrill's chief executive back in its glory days of the 1970s, and back comes a blast addressed to the company's current management: "How long does it take to get your act together?" he asks. "You guys have had over three years. To use a hockey metaphor, the puck is on the ice." The implied message is clear: Schreyer's team had better start scoring goals soon or it won't be on the ice much longer. A Merrill spokesman argues that Regan has been away from the business eight years. He says, "Current management does have its act together." Still, in the assessment of an investment banker: "If Merrill has a few losing quarters and the stock tanks, then Daiwa or Nomura could gobble it up in a second." The shares recently sold for $23, vs. a high of $41.50 in August 1987.

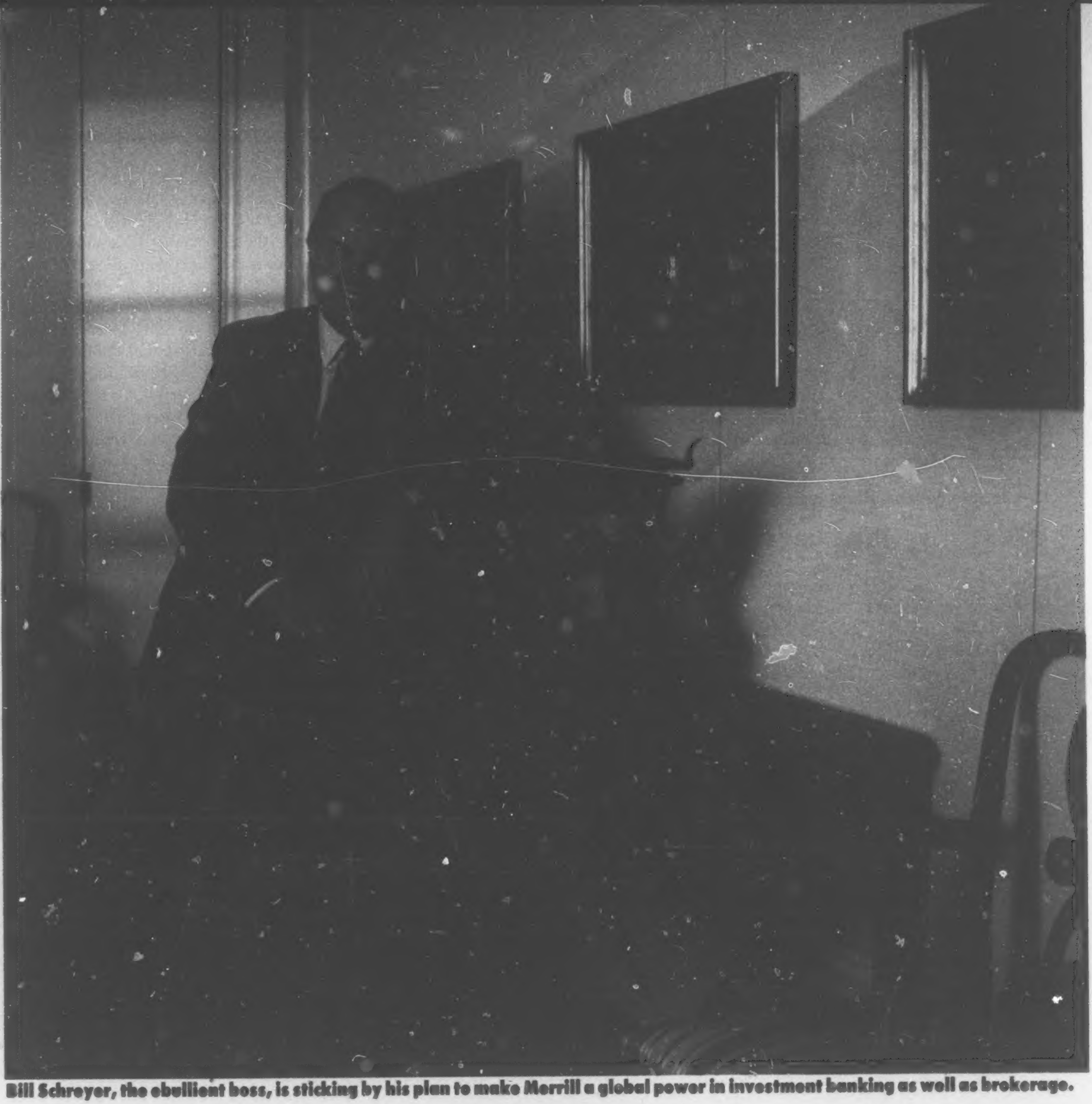
What happened? How could Merrill Lynch—a household name in America, the firm that brought Wall Street to Main Street—be brought to a state where its managerial excellence was even debated?

Dan Tully, the jovial No. 2, recommends reciting the Optimist Creed.

Responsibility begins with the dreams of Don Regan. "My hope was to see Merrill become a diversified financial services company," he says. "I believed that skilled management could control all phases of the business so that each area would be profitable on its own." Toward that end, in the early Seventies he began moving the firm away from reliance on its traditional strength, selling stocks and bonds at retail. Regan correctly feared that the coming of discount brokers would mean thinner profit margins in the brokerage business. He also discerned that the securities industry would be increasingly dominated by institutional investors and companies doing deals. Regan aimed to grab a larger share of the new markets for Merrill.

His idea to take the company deeper into investment banking seemed plausible enough. Merrill would underwrite securities for corporations, and then sell them to retail customers through its branch office network. In 1978, Regan served notice of his intentions by snapping up the investment banking house of White Weld. The acquisition of that venerable firm gave Merrill's thrust into investment banking a bit of pedigree and brought with it dozens of skilled investment bankers, traders, and research analysts. Soon Merrill had in place the pieces for its so-called capital markets division: departments devoted to mergers and acquisitions, underwriting, block trading, and institutional sales and research.

By 1980, Regan was feel-



Bill Schreyer, the ebullient boss, is sticking by his plan to make Merrill a global power in investment banking as well as brokerage.

ing pretty happy about his move. Investment banking revenues were $271 million, 96% higher than 1978, with a big share coming from the underwriting of bond funds. Says Regan: "We were poised to make a lot of money. We had momentum. Reasonable control over expenses. An excellent back office. And management was in place."

LOOKING at the figures, it's hard to dispute this. In 1980, Merrill achieved record results—$3 billion in revenues, $203 million in profits, and a 21% return on equity. On that high note, Regan quit to become Secretary of the Treasury. He had long dreamed of a Cabinet seat and already owned a home in Virginia near Mount Vernon, just a few miles from the White House.

Regan left in charge his longtime No. 2, Roger Birk, then 50. Bright, scrupulously ethical, Birk had saved Merrill's back office in the Sixties when paperwork threatened to swamp operations. But in the top job, his attention to detail manifested itself mostly as paralyzing indecision and an inability to step back and see the larger issues. Regan's sharply etched vision for the company began to slip out of focus. In the 1981 annual report, Birk summarized his strategy thus: "Whatever direction the financial services industry may take, Merrill Lynch will be in front."

Oddly, for all of Birk's obsession with detail, Merrill was slowly losing its grip on costs. From 1982 through 1984, revenues increased 20%, but expenses mounted by 33%, as Merrill expanded into everything from commercial lending in Hong Kong to selling life insurance in the U.S. Some of the biggest cost increases came in investment banking. Led by two former retail brokers, the unit added people at a frenetic pace. Overall, the company's head count swelled from 37,900 to 44,000 from 1982 to 1985. Observes a former chief financial officer: "Nobody wanted to hear about cost cutting. They explained all the spending as being for the future."

Four years after Birk took over, the firm

REPORTER ASSOCIATE *David J. Morrow*

PHOTOGRAPHS BY HANS NELEMAN

KATHERINE LAMBERT

Don Regan keeps a bull in his new office, but isn't bullish on Merrill.

REGAN ON HIS OLD FIRM

Just before he set off on tour to publicize his new book, former Merrill Lynch chief executive Donald Regan talked to FORTUNE *in the offices of his investment firm, Regdon & Associates, in Alexandria, Virginia. For the first time since leaving Merrill, the former Treasury Secretary spoke about his old firm. Excerpts:*

On what went wrong after Roger Birk succeeded Regan:

Some of the people under Roger got a little too headstrong and a little fat and lazy. Merrill was not exactly run in a spartan manner. Eventually costs became a problem. They got too used to limousines and perks. Look at the new headquarters. Mahogany paneling everywhere. The swish dining rooms. The chauffeured cars. See you in Boca Raton. See you at the Louvre. That attitude has permeated Merrill as well as the rest of Wall Street.

On the performance of current top management:

I have no problem with their trying to take Merrill in a new direction, but how long does it take to get your act together? Most FORTUNE 500 corporations give the CEO one to two years.

On management's statement that it is investing for the long term:

You don't have the luxury of the long term. It's a cold, cruel world out there. After all, would Merrill recommend to its customers that they buy the securities of a company whose business isn't improving?

On management's strategic vision:

Great, they have vision. But are they certain that they have expenses well under control? Are they willing to defer compensation until the performance improves? Why pay top executives who have been leading Merrill's mediocre performance? Would they leave if you didn't pay them? Maybe, but maybe that's not so bad.

On Chairman William Schreyer:

Very sophisticated in the ways of Wall Street. Well-rounded background. People naturally like him. A charming and good natured personality. He can be an inspiration to people. He has a game plan and is trying to execute it.

On President Dan Tully:

He is a salesman's salesman. The big producers like him. A heart of pure gold.

On whether Merrill needs new top management:

I don't know. Some think yes, some say, "Who would do any better with a firm of this size?" If you say Peter Cohen [the combative head of Shearson Lehman Hutton], then you might lose all of the top managers.

On the challenges ahead at Merrill:

First, how are they going to handle deregulation? Second, they have to figure out how to control costs and control the allocation of capital. They must minimize the risks of losing their capital. Third, they must keep control over their people so that they do not get into the insider trading problems afflicting so many other firms. Fourth, they must make sure that they have enough good people to get the job done.

seemed headed for its first annual loss in history. As costs exploded, brokerage commissions stagnated and investment banking fees fell. Only the decision by Birk and then second-in-command Schreyer to sell Merrill's Wall Street headquarters and book a $127 million capital gain kept the company out of the red. As it was, in 1984 Merrill earned a slim $95 million on revenues of $6 billion, for an embarrassing 4.6% return on equity.

MERRILL needed help. Birk was suffering from sleepless nights, which did nothing to improve the speed of his decision-making. Increasingly he delegated matters to Bill Schreyer, who had been overseeing the bulk of Merrill's business since 1978, when he became chief operating officer of both the retail brokerage and growing investment bank. Everyone liked Schreyer, a smiling, backslapping son of a former manager of Merrill's branch in Williamsport, Pennsylvania. The only knock against him, insiders say, was that he was too nice, too much of an old boy to shake up his colleagues.

Schreyer turned for assistance to McKinsey & Co., the management-consulting firm, to find ways to cut costs. "Let's let McKinsey be the lightning rod," Schreyer recalls thinking to himself. The consultants' six-month study revealed that Merrill needed far more than corporate liposuction. It made clear what most people at the company already knew—that Merrill lacked strategic direction and was poorly organized. Most important, the study resulted in the first economic map of Merrill, whereon every expense was allocated to a product or service. The consultants uncovered a ton of hidden costs.

Schreyer emerged from the study with a plan to revamp the firm. Merrill would be rearranged into three separate businesses within a holding company: a U.S. retail brokerage; a much expanded capital markets group; and an international division that would be part brokerage and part investment bank. Each unit was to focus on a particular set of clients: retail on individual investors in the U.S; capital markets on institutional investors and corporations issuing securities; and international on overseas investors and issuers.

In a sense the plan was too much for Birk. Over the Memorial Day weekend in 1984, Schreyer presented his agenda for the future to his boss in private. According to Schreyer, the CEO responded, "Look, I want to retire at age 55. That's a year from now. I think you've got the thing pretty well figured out. I'm going to have to stay far longer than I want to if the job's going to get done." Schreyer says that he neither urged his boss to quit nor argued against his leaving. "He had said before that maybe he wanted to do nothing for a while," recalls Schreyer. "And I said, 'If you're sure, let's sit down and do it.' " So they did. A month later, in June, Birk announced that he was stepping down as CEO and kicking himself upstairs to become chairman of the board for the next year.

No sooner was the crown placed on Schreyer's head than he received a shock—to his heart. "I'm out in Chicago," he recalls, "entertaining clients, playing tennis. My partner is Marty Riessen, the former doubles champion. Near the end of the second set, I get a little chest pain." The ache was acute angina. Schreyer's doctor scheduled him for a triple-bypass operation. A bit ominously, the surgery, scheduled to be performed on November 1, All Saints' Day, was postponed by the hospital until November 2, All Souls' Day. Schreyer remembers Birk saying to him, "Don't die on me, you son of a bitch."

After the operation, Schreyer spent two months away from Merrill headquarters recuperating. In his absence, his top subordinates began fighting among themselves over how to cut costs to meet the plan. The chief administrative officer, Robert Rittereiser, wanted to fire brokers and bankers. Daniel Tully, then head of those units, vehemently opposed the idea. Not coincidently, Rittereiser and Tully were both jockeying to become Schreyer's chief operating officer. From afar, Schreyer watched the high-level tussle with growing annoyance. "Being away," he says, "gave me a chance to see who I could count on."

UPON HIS RETURN in January 1985, he decided that he did not want to count on Rittereiser. He thought Rittereiser had overreached himself by pressing for Merrill to severely prune its retail brokerage, which Schreyer, the branch manager's son, loved as much or more than anyone else at the firm. Says Schreyer: "I told him that what I wanted was a chief administrative officer, not a crown prince." No jaws dropped when Rittereiser quit Merrill in June 1985 to become president of E.F. Hutton.

Schreyer quickly tapped Tully, a bluff 6-foot 3-inch former broker, to become chief operating officer. Within months Schreyer assembled the rest of his team. John L. (Launny) Steffens, now 46, national sales director and a Tully protégé, took over the consumer markets division. Jerry Kenney, another relative youngster at 46, remained head of capital markets. He had come aboard when Merrill bought White Weld, where he had been director of research. Abandoning Merrill's tradition of promoting exclusively from within, Schreyer imported a new chief financial officer from Detroit—General Motors' Courtney Jones, 48. Schreyer reasoned that someone who could design cost controls for GM could do the same for Merrill.

How has the new lineup done in the last three years?

Merrill's retail brokerage has fallen short of security analysts' expectations. Says one: "You would have thought that having the most valuable distribution network on the face of the earth would be an incredible advantage in a bull market." But Merrill's brokerage profits remain resolutely average, an estimated 10% return on the capital invested in the business.

Brokerage headman Launny Steffens has taken steps to improve profitability. He lessened Merrill's reliance on commissions from stock and bond trades by increasing fees earned managing the mutual funds the firm runs for its customers. So-called asset-management income has two advantages. The profit margin averages 35%, and the business takes less of a hit than retail stock trading in a bear market. Assets under Merrill management climbed from $48.1 billion in 1984 to $84 billion by the end of 1987, a feat unequaled by any other securities firm. Steffens also boosted revenues by introducing a raft of new products. For example, in 1986 Merrill sold $648 million of insurance, mostly variable life and single-premium whole life policies. That was 278% more than 1984.

But not even Steffens's yeomanly job could return the retail brokerage to the high-

Jerry Kenney (seated) runs the investment bank, Launny Steffens the brokerage.

This year Merrill underwrote more stock and bond issues than anybody else . . .

1987 Leading Underwriters*

	Net proceeds (in millions)	Market share	Issues
① Salomon	$40,284.4	14.8%	327
② First Boston	$36,628.1	13.5%	256
③ Merrill Lynch	$33,482.8	12.3%	301
④ Goldman Sachs	$32,442.3	11.9%	303
⑤ Morgan Stanley	$29,723.8	10.9%	297
⑥ Shearson Lehman Hutton	$22,504.3	8.3%	320

*Domestic issues only.

1988 Leading Underwriters*

	Net proceeds (in millions)	Market share	Issues
① Merrill Lynch	$16,194.7	15.8%	163
② Salomon	$14,556.9	14.2%	108
③ Goldman Sachs	$13,238.1	12.9%	167
④ Morgan Stanley	$10,654.3	10.4%	110
⑤ First Boston	$10,654.3	10.4%	109
⑥ Shearson Lehman Hutton	$8,995.8	8.8%	132

*Domestic issues only. Data reported from 1/1/88 through 5/18/88.

SOURCE: IDD INFORMATION SERVICES

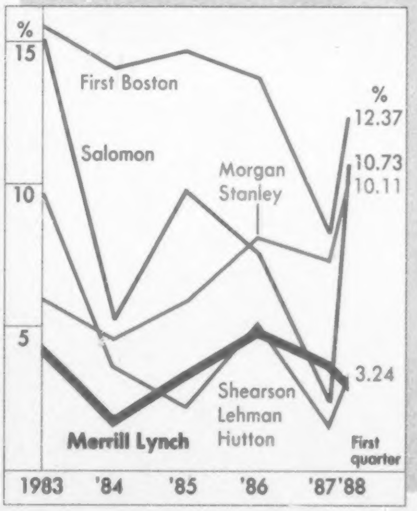
profit days of the Seventies, when the return on capital hovered around 20%. No matter how much he goosed revenues each year, his costs rose as fast. Says Sanford C. Bernstein & Co. stock analyst Michael Goldstein: "Even good managers can't dramatically improve retail margins. A full-service brokerage is a high-cost business."

Meanwhile, over in capital markets, Jerry Kenney faced a different set of challenges. He managed to jack up revenues, albeit less than Steffens. Investment banking income rose to $996 million by year-end 1987, a not at all shabby 71% above 1984. Debt and equity underwriting grew 284%. Most dramatically, mergers and acquisitions activity increased 159% over the year before.

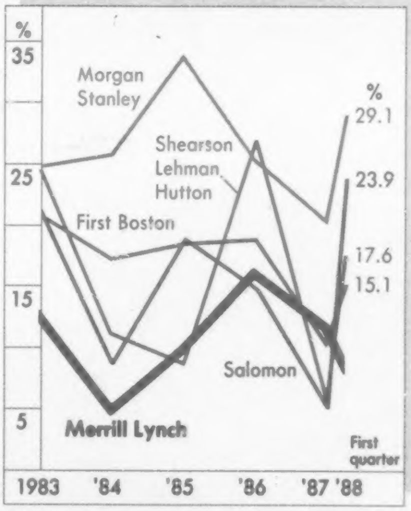
But bigger was not necessarily more profitable. While Kenney created an investment bank whose revenues are in the same league as other big houses, its profits remain smaller than those of its principal competitors. For instance, compare Merrill's performance with Salomon Brothers, which in the Eighties bounded into investment banking from its traditional niche as the master trading house. Mike Goldstein estimates that from 1985 to 1987, Salomon's average profit margin in investment banking was 33%. Merrill barely earned anything.

. . . but in overall profitability, it remains a laggard.

Profit Margins



Profits as a % of Stockholders' Equity



Profitability figures for the first quarter of 1988 are annualized and don't reflect seasonal variations in the business. All other numbers are annual figures.

Kenny's strategy now appears to have been flawed from the beginning. Merrill, the high-cost firm, could not profitably gain market share by cutting prices. He underestimated the price of hiring hundreds of new people to compete with the old-line investment banks. Today, Kenney concedes that Merrill's foray into capital markets has cost the shareholders "a couple of points or more of return on equity a year."

KENNY WOULD have had even worse results if his mergers and acquisitions team hadn't started hitting homers in 1985. Three of the company's smartest investment bankers came up with a way to increase Merrill's involvement in the mergers and acquisitions game. Barry Friedberg, Kenneth Miller, and Robert Mancuso decided to use Merrill's balance sheet as a substitute for its lack of reputation: They pioneered the bridge loan—short-term financing for dealmakers intent on leveraged buyouts.

Would-be acquirers loved it. In the next 12 months Merrill more than doubled its mergers and acquisitions business. Last year was even better, despite copycat efforts from other investment banks: Using bridge loans, Merrill completed two of the biggest leveraged buyouts ever. The LBOs took Borg-Warner private for $4.8 billion, and Supermarkets General for $2 billion. The fees rolled in, an estimated $128 million on those two transactions alone. Fat city.

Unfortunately, the capital markets group made mistakes in other parts of its business that virtually wiped out these gains. Only days before Easter 1987, Kenney was rocked by the news that a 32-year-old trader had lost upwards of $350 million on a bad bet in the mortgage-backed securities market.

continued

The trader, Howard Rubin, bet that prices were headed higher. He was wrong. But instead of taking his initial loss, estimated to have been around $50 million, Rubin tried to recoup by doubling his wager—this time without asking anybody's permission. Says a still-fuming top Merrill executive: "I hope he goes to jail for hiding his trading tickets from us." Rubin's lawyer notes, however, that no criminal charges have been filed against his client, who, he says, "acted properly." An expert on trading, called in by Merrill to help it avoid similar debacles, observes that there's plenty of blame to go around: "The biggest reason for the loss was that the managers didn't understand the volatile nature of the mortgage obligations that the trader had in his portfolio. They were ignorant."

While other Wall Street firms lost money trading last year, Merrill dropped the most by far. Because of the April loss, Merrill's 1987 operating income before extraordinary items and taxes plunged 45% compared with the year before. Says Don Regan: "They are discounters in an upscale business. This means high volume and low margins. Unfortunately, those profits can be wiped out by one huge loss like the trading mess."

Meanwhile, Merrill's London-based investment bankers have been losing their Turnbull & Asser shirts in Western Europe. Schreyer rolled the international division into the capital markets group in 1986. In trying to build Merrill's global presence, Kenney hired too many dealmakers who underwrote more stocks and bonds than Merrill's institutional brokers could sell to their clients at a profit. Since London accounts for over 50% of the international operation's costs and almost 50% of revenues, as it goes so goes the entire overseas unit. The barons running Merrill's London operation appear to have gone off in the wrong direction at first. Says Kenney: "They tried to compete head-on against European investment firms on their home turf. We have refocused the business toward cross-border transactions where our global origination and distribution capabilities are tops." Still, according to a top Merrill capital markets executive, the international group continues to lose money at the rate of $50 million a year. A Merrill spokesman denies this and, without disclosing figures, says the division is profitable.

With the stock market in the doldrums and just about everybody's brokerage operation hard hit, 1988 is treating Merrill even worse than 1987. In the first quarter, revenues dropped 5% compared with the same period in 1987. Commissions for the retail brokerage sank 32%. Pretax earnings plunged 59%.

Particularly troubling has been Merrill's slump in mergers and acquisitions. Merrill has not been doing the big deals of late. An ex-Merrill investment banker explains, "Their M&A business is dependent on bridge loans, but now everyone can offer a bridge if they need to. That's why Merrill's been nowhere in that business in 1988 when it is hot as hell."

Some big producers, including Mancuso and Miller, have already split. Says a recently departed investment banker: "Frankly, I left because it's worrisome when senior management does not understand one of the two main businesses. It does not inspire confidence that big mistakes will be avoided."

The former CEO argues that Merrill must merge with a bank or financial services company. Is Regan trying to put his old firm in play?

Merrill still has a cost-control problem. Despite Schreyer's much ballyhooed elimination of 2,800 jobs in 1984 and the impressive cost-allocation system designed by CFO Jones, the number of people on the payroll suggests that management hasn't made the cuts stick. "We had 44,000 employees in early 1985," recalls a former Merrill executive. "By 1987, they had almost 47,000. That's managerial progress?" Since the panic of October 19, Merrill has laid off about 3,000 people, which brings the roster back to 1985's 44,000. An investment banker who left the company comments, "Sometimes, you have to be ruthless about laying people off. They're not." A former member of the board says, "I could run a small Latin American country on what Merrill could save if they knew how." A company spokesman responds, "We've put in place new financial information and control systems to better understand and control costs."

Schreyer and Tully have no intention of backing off their plan to be the biggest brokerage and investment bank. Says Tully: "I think it is and was and will be the correct strategy." They argue that it's still too early to know how successful the plan will be. Tully notes that he and his compatriots "all sing the Optimist Creed," a piece of inspirational wisdom that includes avowals "to look at the sunny side of everything and make your optimism come true . . ." He has enshrined a written recitation of the faith over the john in his executive bathroom.

Most security analysts don't share the optimism. A research analyst who covers the company asks, "Management screwed up in the bull market. Why should they do better now that we have a bear market?" The analysts say that the extent of Merrill's future woes will depend on how many of its businesses turn down simultaneously. The latest quarterly income statement suggests that most have. Regrettably, fixed costs haven't. That could result in Merrill's first yearly loss ever.

Further out, Merrill's prospects don't look bright. As Glass-Steagall gets chipped away, commercial banks will attack with a vengeance. And Merrill will still be competing against its traditional Wall Street rivals who run more tightly focused operations. Says Harvard business school professor Robert G. Eccles, co-author of a forthcoming book on investment banks: "In any one of Merrill's 125 businesses, there will be at least two other firms that will kill to do well."

The big question now is whether top management can prevent further slippage. Don Regan has reservations. "We're in a changing financial world. The banks are coming in, and they will have their Third World loans behind them," he says. "If Merrill tries to stand alone against those forces, it will be mediocre in the 1990s. Morgan, Chase, and others will bid away its securities business. Then what will management do?"

THE FORMER CEO argues that Merrill must merge with a commercial bank or some other large financial services company. "It would give the firm a hell of a competitive edge in servicing the full range of corporations' financial needs," he says. "Merrill is not smart enough to start lending money *de novo*."

Regan has a few prospective buyers in mind. They include Morgan Guaranty and—hold on to your hats—General Motors Acceptance Corp. Is he trying to put his old firm in play? Its stock sold recently at 80% of book value. Regan will only say, "This is a matter for management and the board." Schreyer replies, "Right now our determination is to remain fiercely independent." But can they? ■

LOOK OUT, WORLD, HERE WE COME

America's big bosses say the U.S. is doing just fine against the international competition. They love the world marketplace. And protectionism? Forget it!

■ *by David Kirkpatrick*

WHERE international trade is concerned, America's top executives are a consummately confident bunch. The latest FORTUNE poll of U.S. CEOs finds that by a margin of 3 to 1 they reject the trendy doomsayers of decline and see American industry gaining on Japan. Their overwhelming preference is for open borders, not protectionism.

"I'm very optimistic about America's international competitiveness, more so than I've been in a long, long time," says William O. Bourke, chairman of Reynolds Metals. Bourke and many of his comparably cheerful colleagues mention the devalued dollar, the shrinking trade deficit, the aggressiveness of newly restructured American companies, increased productivity, and U.S. success at creating jobs among the many reasons they believe the country is not sliding downhill.

THE OPINION RESEARCH firm of Clark Martire & Bartolomeo polled 218 CEOs between May 10 and May 18—before President Reagan vetoed the trade bill and before the first-quarter trade figures were released, showing a sharp improvement in U.S. performance. All the respondents head companies listed in the FORTUNE Industrial 500 or Service 500. A stunning 81% of those in this latest FORTUNE 500/CNN Moneyline CEO Poll believe the U.S. economy does not need greater protection from imports. Says George Keller, chairman of Chevron and an ardent free-trader: "I don't think anything good comes from protectionism. It just makes us lazy. It's the kiss of death." Daniel Smith of Kalamazoo's First of America Bank Corp. concurs: "More protectionism would kill us." Adds Marion O. Sandler, president of Oakland's Golden West Financial Corp., a big savings and loan holding company: "Protection is the same thing as maintaining the status quo. It stifles innovation and creativity. That won't help us compete in the long term."

Even some CEOs whose companies benefit from tariffs oppose them. Dallas-based National Gypsum competes with foreign ceramic tilemakers who pay substantial duties to enter the U.S. But CEO John P. Hayes wouldn't mind seeing that tariff lifted. "It would be painful, but we'd beat it," he says. "I'm basically antiprotectionist because I think anything that raises the cost of goods for the American consumer lowers the American standard of living. We ought to compete head-on." Says another executive in a protected industry: "Putting up barriers weakens our will to improve productivity by modernizing and generally honing our management skills. We're going to have to pay the piper sooner or later."

GEORGE KELLER
Chevron

Some CEOs caution, however, that the U.S. cannot simply throw open the gates to completely free trade. Says Roger Stone, chairman of Chicago's Stone Container, a paper company: "In general the world is much better off without barriers. But it's got to be quid pro quo." Bourke of Reynolds is more blunt: "This notion of free trade everywhere is nonsense. It just isn't going to happen. We don't need strict new protectionist laws, but each industry has to be looked at on its own merits."

While they oppose increased protection from imports, almost half the CEOs who compete internationally believe their own company is not on a level playing field with foreign competitors. Many see the big problem to be meddlesome government at home rather than trade policy either in the U.S. or abroad. Chevron's Keller, for example, says high federal and state corporate taxes in the U.S. are his company's biggest competitive disadvantage. "European oil companies don't pay any meaningful taxes at home on production in another country, as we do," he says, "and in Japan there are government subsidies for exploration." A burgeoning domestic regulatory burden is another common complaint. John H. McConnell, chairman of Worthington Industries, says the Columbus steel processor now spends over $500,000 each year to comply with recently imposed government regulations, including those affecting retirement and medical plans.

Despite their distaste for government intervention, however, a number of top executives, including McConnell, point approvingly to the Japanese government's activist role. Michael W. Wright, chairman of Super Valu Stores, the nation's largest diversified service company, speaks for many: "Government and business ought not to be adversaries. In Japan there is a very close partnership to help identify and exploit foreign markets."

Nonetheless, the CEOs don't fear the rising sun. They think it's morning in America. Fully 77% believe the U.S. is gaining ground economically compared with Japan and the newly industrializing countries of Asia. And though they are split almost evenly over whether the globalization of industry is good for the U.S. standard of living, most are firm

■How are big global players dealing with the cheap dollar and protectionist pressures? This article surveys the sometimes surprising reactions of U.S. CEOs. The following stories examine the effects on America's roller-coaster semiconductor industry and Japan's amazingly undaunted automakers.

REPORTER ASSOCIATE *Wilton Woods*

believers in a world marketplace. Says Bourke: "The Japanese and the French and the Germans are building plants in this country. That's good. They're just doing what we've been doing for 50 years. Hell, our company operates in about 35 countries. Things have a way of evening out. It's one big global economy now. They can come here, and we can go there."

MARION O. SANDLER
Golden West Financial

When seen through globalist goggles, what looks good at home? "I think we have accomplished a small miracle in restructuring our basic manufacturing industries," exults Donald Clark, chairman of Household International, an Illinois financial and manufacturing company. Says Hayes of National Gypsum: "Our country has the best record in the world at creating jobs in the past several years, and they aren't just low-paid service jobs."

To Chairman John J. Murphy of Dresser Industries, things aren't nearly as bad as they were a few years ago. His energy products and services company, headquartered in Dallas, has recently begun bringing overseas production back to the U.S. "We can compete on a cost and quality basis with anyone in the world today, using our U.S. plants," he says. "The American worker is as productive as anybody, given the right tools."

But even the optimists don't think Americans should start letting up now that the outlook has improved. Says Sandler of Golden West Financial: "We've turned the corner in some areas, and in others we still have work to do. But we've been shocked out of our complacency." Wright of Super Valu Stores sees "a big warning light" when it comes to domestic social difficulties: "A large proportion of our population is drug and alcohol dependent, and many don't even graduate from high school. We have to come up with some very specific answers for those problems or we will start falling behind other nations, particularly those of the Pacific Rim that focus on educating their entire population."

A MINORITY of CEOs believe the nation's domestic troubles are so severe that the U.S. is in fact in a decline. Says Dwight L. Carlisle Jr., president of Russell Corp. of Alexander City, Alabama, a maker of textiles and athletic apparel: "Education is the real weakness I see today. It worries me greatly." Chairman Robert Strickland of Atlanta's SunTrust Banks sees storm clouds elsewhere: "Our fiscal policy, our national financial management, is headed in the wrong direction. We have to spend less, borrow less, and save more."

Although the deal may not be approved, the executives take heart from the free-trade agreement recently negotiated between the U.S. and Canada. "Trade expansion rather than restriction just makes good sense," says Stone. "It will benefit the economies of both countries." Bourke says the agreement will eliminate tariffs that both countries have levied on aluminum, for example. Because the tariffs are higher than transportation costs, Reynolds supplies customers anywhere in Canada from two smelters in Quebec and customers across the U.S. from smelters in Washington and Oregon—even if the Canadian customer is in Vancouver and the American customer is in Illinois. If the tariffs disappear, Reynolds will simply supply customers in either country from the nearest smelter, at a substantial saving in shipping expense.

WILLIAM O. BOURKE
Reynolds Metals

There's nothing like continued good news about declining trade deficits to make a CEO feel good about his business and his country, especially when the good news takes the concrete form of fatter order books. All in all, a remarkable—and remarkably speedy—turnaround from the gloom of less than a year ago.

Q

Is the U.S. economy gaining or losing ground to Japan and the new industrializing countries of Asia?

A

Is gaining ground	77%
Is losing ground	18%
Not sure	5%

Q

Do you believe that the U.S. economy requires or does not require greater protection from imports?

A

Requires protection	11%
Does not require it	81%
Not sure	8%

Q

Is your company on a level playing field with foreign competitors?

A

On a level playing field	43%
Not on a level field	40%
Does not apply	12%
Not sure	5%

Q

As industry globalizes and jobs move easily across borders, is the U.S. standard of living being helped or hurt?

A

Helped	39%
Hurt	42%
No difference	12%
Not sure	7%

Q

Do you mostly agree or disagree with those who say the U.S. is in decline? Why do you feel that way?

A

Agree	22%
Disagree	75%
Not sure	3%
WHY AGREE	
Trade imbalance shows the U.S. is uncompetitive	31%
Growth slowing as U.S. loses world dominance	22%
The budget deficit is not being corrected	14%
U.S. companies do not plan for the future	10%
WHY DISAGREE	
U.S. becoming more competitive and aggressive	29%
The economy slowing only relatively, not declining	14%
U.S. standard of living is admired worldwide	12%
Dollar's value has made U.S. goods competitive	11%
U.S. productivity is increasing	9%
U.S. remains tops in product quality	8%

COMPETITION

THE U.S. CHIPMAKERS' SHAKY COMEBACK

Aided by the mighty yen, they have won an important battle in their war of attrition with Japan. Now that there is a lull in the fighting, will they seize the chance to rearm? ■ *by Gary Hector*

THE GOOD TIMES are rolling again for U.S. makers of semiconductors, the tiny electronic circuits-on-a-chip that form the heart of modern computers. Two years ago pessimists were saying, "*Sayonara*, Silicon Valley." But the pitiless onslaught of giant Japanese competitors has let up, and a resurgent personal computer industry has helped put American chipmakers back on their feet. Prices are soaring, factories are running full tilt, profits are pouring in. Sales increased 20% last year and should bump up at least that much again in 1988. Though chastened by their brush with disaster, top Silicon Valley executives sound hopeful. "The whole environment has changed," says Charles Sporck, chief executive of National Semiconductor Corp., an industry leader. "That bodes very well for us."

But can they keep it up? Now the challenge to the industry is to seize the pause in the war to fix the weaknesses that the Japanese exploited. That's a daunting chore. To succeed, the U.S. companies must turn a momentary advantage into longer-term superiority. Though the swing in currency ex-

REPORTER ASSOCIATE *Carrie Gottlieb*

ED KASH

America's edge *over the Japanese comes in small, flexible factories like this one at Cypress Semiconductor in Silicon Valley, run by . . .*

change rates now allows Americans to produce many chips as cheaply as the Japanese, by and large Japan still has the edge in manufacturing—developing efficient production lines, keeping defects to a minimum, and making full use of capacity.

What troubles U.S. semiconductor executives is not the short term, but the industry's long-run viability. "If you look at the overall industry," says Robert Noyce, vice chairman of Intel Corp. and a founding father of the semiconductor business, "its return on capital is pretty poor over any extended period of time. Right now is about as good as it gets. The question is whether the industry can attract enough capital to keep up with its needs." Since 1982 profits of the five largest independent chipmakers haven't thrilled investors. According to figures from Shearson Lehman Hutton, the average return on shareholders' equity over six years for the *best* performer, Motorola, was an unspectacular 10.4%. And its profits were helped by earnings outside the semiconductor industry.

DEMAND FOR CAPITAL is already vast—and growing. A first-rate fabrication facility for mass-produced memory chips now runs about $200 million. By the early 1990s the cost will easily top $300 million, as each new generation of products requires larger and more expensive equipment. G. Dan Hutcheson, an analyst at VLSI Research, a market research firm in San Jose, California, suggests that if current advances in technology continue, sometime in the 1990s the cost of such a facility could hit $1 billion—a sum beyond the reach of almost any U.S. chipmaker except IBM or AT&T. Yet Japanese semiconductor companies, which are part of larger corporate groups like NEC and Toshiba, are big enough to handle that kind of investment.

The Reagan Administration's tough trade negotiators deserve part of the credit for shifting the competitive balance between U.S. and Japanese chipmakers. Says Jerry Sanders, the white-maned chief executive of Advanced Micro Devices, with characteristic overstatement: "Without the U.S.-Japan trade agreement, the U.S. industry would be essentially dead." But the real cause of the turnaround is the supine dollar. Measured in dollars, Japanese manufacturers' costs have increased rapidly over the past three years, permitting U.S. companies to compete head to head on most items. The American industry has a respectable edge in creating new products and manufacturing custom-designed chips. In these markets, U.S. semiconductor companies can not only butt heads with the Japanese, they can win.

The advantage, however, will not be enough to allow the U.S. to reclaim lost territory. So far the industry's biggest black eye has been sales of commodity items, notably DRAMs, dynamic random-access memories, which personal computers use in abundance. The Japanese simply stole that market by selling chips below cost; they now have a 90% share. Even if the U.S. could outgun the Japanese, lined up behind them are manufacturers of these high-volume products in South Korea and elsewhere in Asia.

. . . **Chipmaking upstart** *T. J. Rodgers*

Now the battle focuses on lower-volume, more customized integrated circuits. The Japanese have stepped up research and development on products the U.S. has dominated—especially microprocessors, those ubiquitous tiny computers compressed into a single chip. And they are looking for ways to manufacture lower-volume products more efficiently than the U.S. can.

The weakness of the American semiconductor industry was probably exaggerated in 1985 and 1986. Though the U.S. no longer dominates world markets, it remains the world's largest chip producer. Dataquest, a market research firm in San Jose, estimates that this year U.S. manufacturers will turn out some $25 billion of chips, vs. $22 billion for the Japanese. "That flies in the face of commonly held opinion," observes Michael Boss, who follows the industry for Dataquest.

What distorts the common perception is that the most widely used estimates of the U.S. industry's size include only the production of "merchant" semiconductor companies, which sell chips on the open market. Five big and more than 100 smaller merchant companies will produce the bulk of U.S. chips this year. Dataquest analysts put the figure at more than $18 billion; the remaining $7 billion is their estimate for semiconductor makers that are part of larger U.S. companies, called captive manufacturers. This group includes none other than IBM, whose $3.1 billion semiconductor output last year makes it the world's second-largest maker of chips after NEC. But since captives produce almost exclusively for their parent companies and don't publish their output, many estimates of the industry's size exclude them.

The U.S. has yet to concede any markets to the Japanese. IBM manufactures DRAMs in large quantities; so do Texas Instruments, Motorola, and Micron Technology, a small Boise, Idaho, company that had $102 million in sales for the six months that ended in March. Americans are still five years ahead of the Japanese in some products. For example, the U.S. is the only significant player in the hottest new market in the business—RISC (for reduced instruction-set computer) microprocessors, which run at speeds four to ten times those of today's most popular models. The U.S. also sets the standard in small, flexible manufacturing facilities that can turn out dozens of different types of chips on a single production line.

NEVERTHELESS, U.S. executives and investors alike are terrified that the Japanese will repeat their conquest of the DRAM business in other products. Armed with mountains of capital, the Japanese added DRAM capacity steadily throughout the 1970s. By the 1985-86 slump they had helped create a huge oversupply. To minimize losses on capital invested in factories, Japanese producers flooded the market with DRAMs and to a lesser extent with other commodity chips like EPROMs (erasable, programmable, read-only memories). While this behavior was perfectly rational for the Japanese, it led to cries of dumping in the U.S., where domestic manufacturers lost more than $2 billion battling to keep market share.

By operating their plants at full capacity an average of 130 hours a week, Japanese producers achieve significant economies on large production lines. In some cases their costs have been 30% or more below U.S. manufacturers'. Even so, security analysts estimate that they lost some $4 billion in 1985-86. That experience alone should help head off future price wars—especially since the highflying yen has knocked the Japanese out of their position as the industry's low-cost producer. They now lag behind competitors in Korea and other Asian nations that have not been so hard hit by rising currencies. Despite the good news, most U.S. chipmakers aren't comfortable enough to go charging back into the DRAM market. Says Jerry Sanders of AMD, which abandoned the business in 1986: "If you've been bitten once by a wild mad dog, there is a certain caution at your next meeting."

Japan's edge *over the Americans comes in large, robotized factories. This Mitsubishi plant in Saijo turns out huge quantities of a few commodity products. Number of production workers: 0.*

Exactly what it was that tamed the Japanese is of great importance to executives planning their next capital investments. After semiconductor manufacturers complained loudly about Japanese "dumping" in the U.S., in the summer of 1986 Japan signed an agreement to end it. The initial effects were exactly the sort of textbook horrors any free-trader would expect. The Japanese continued to sell to the rest of the world at a price U.S. manufacturers believed was well below their average cost, creating a gray market abroad for U.S. buyers. Then, when the Japanese government encouraged cuts in DRAM production, it in effect created a cartel, a small group of producers acting in concert to control supply. Output fell and prices recovered.

Does that mean the trade agreement saved the day? Probably not. Says William McClean of Integrated Circuit Engineering Corp.: "If the agreement has had any effects at all, it is hard to distinguish them from the normal industry cycle." The increase in the yen and a predictable cyclical upturn in the industry account satisfactorily for most of the changes in prices and production since 1984. In 1985-86, with DRAM prices plunging and losses mounting, both the Japanese and the U.S. cut back spending on new factories. Since it takes about two years to put a typical plant into operation, the effect was not felt until early 1987, just as demand for DRAMs picked up. The overcapacity of 1985-86 turned into undercapacity, and prices began to rise steadily. By mid-1987, according to VLSI Research, the industry was at full capacity. DRAM producers are earning stunning profits—in May standard DRAMs that cost under $2 to make were selling in the spot market for about $10—but since 90% of the market belongs to the Japanese, they are reaping most of the gains.

Noyce of Intel figures that the U.S. is about at parity with the Japanese on production costs. This means that U.S. manufacturers can compete, and win, on manufacturing efficiency alone. But maintaining that efficiency has its price. Even IBM, which has consistently been a match for the Japanese in manufacturing, feels pressure now to keep up. "We have improved our productivity dramatically in the last two years," says Patrick A. Toole, an IBM vice president and general manager of the company's technology products division. "I don't think that put us a great leap ahead, yet it took an enormous amount of investment and invention."

Some U.S. manufacturers may now be beating the Japanese on costs. Because of the complexity of manufacturing integrated circuits and the unique qualities of many chips, precise cost comparisons are difficult. But Sporck of National Semiconductor, for one, argues that he has undercut the Japanese: "We're below them. That's not universal, on every item, but by and large we're below them."

He has witnesses. Raymond Capece, executive vice president of Lattice Semiconductor, which markets high-speed programmable chips, recently shopped for a U.S. manufacturer to fabricate his products. When Lattice looked for help making chips in 1985, U.S. companies were too expensive, so despite the drawbacks of working with a supplier thousands of miles away, it ended up with Seiko Epson in Japan. But last year, when Lattice decided to add a U.S. manufacturer, it got a bargain. National Semiconductor agreed to produce bigger silicon wafers, containing 25% more chips than Seiko's, for less than the Japanese price per wafer.

BUT IN THE LONG RUN even lower costs will not be enough. The U.S. remains no match for the Japanese in manufacturing quality, which they treat more like a religion than a business. Says Sporck: "A significant improvement will require a five- or six-year effort." A key to closing that gap, says Sporck, is Sematech, an industry consortium founded last spring and partially financed by the U.S. government. Sematech aims to improve the industry's manufacturing. Yet the consortium has made little progress toward the initial goal of building two demonstration production lines. Only this April did it move staff into its headquarters in Austin, Texas.

Sematech has a coterie of detractors. Consortiums often fall prey to mistrust among members, which rarely commit first-rank executive or scientific talent to them. Sematech's slow launch has not been encouraging. Among other things, a search committee charged with finding a chief executive for the group missed its March 31 deadline and was still looking in May. The reason, Noyce insists: "We are aiming very high, and we haven't yet lowered our sights."

A few semiconductor executives are riled because Sematech appears to be aimed at propping up the large merchant houses like Intel, AMD, and National Semiconductor while offering little benefit to smaller companies. "They've managed to get themselves a government subsidy," says T. J. Rodgers, head of Cypress Semiconductor, a modest but prosperous startup that had $77 million in revenues last year. He adds: "Only two companies with sales below $500 million have joined Sematech." The reason, Rodgers says, is that the fees, which start at $1 million a year, are too high for small companies. "I don't think our government's money should be used like that, especially when the subsidy excludes companies that are the lifeblood of the industry." To Rodgers, the lifeblood consists of companies his size, with the nimbleness to create and expand new markets.

Cypress has made its mark by adeptly using small, flexible fabrication lines to produce a plethora of products. Its San Jose facility for fabricating wafers covers about 8,000 square feet, perhaps one-third the size of a typical U.S. or Japanese clean room. Yet Cypress turns out 82 products in that facility, while the vast Japanese factories fabricate just a few types of chips in huge volumes. "We optimize the business for what Americans are good at," says Rodgers. "I like to think that those gigantic Japanese factories are like the battleship *Yamato*—so awesome that you would think there was no way to compete. But they can't hit anything that is quicker than their guns." (The *Yamato* was one of the most powerful battleships ever built when it was launched during World War II; it was sunk in 1945 by repeated air attacks from Allied forces.)

Rodgers makes no secret of his aspiration to grow Cypress into a company with $1 billion in annual sales by adding sophisticated, specialized products, each produced in relatively low volumes in his factories in San Jose and Austin. "The industry is becoming more and more fragmented," Rodgers argues. "Specialized knowledge is becoming more and more important, and the proliferation of products will continue as far as I can see."

What should worry Rodgers is that the Japanese too are pouring money into more flexible factories. While they have been unsuccessful at making the frequent changes in production lines that these factories require, recent reports suggest that NEC, Mitsubishi, and others will soon unveil a new generation of factories that will be far more competitive.

The World's Biggest Chipmakers

U.S. (yellow) and Japanese (gray) companies share equally among the top 15, while Europe (green) lags behind. Only two American companies, IBM and AT&T, are as large as the Japanese, and they sell almost exclusively to their own divisions. The Japanese can sustain hefty losses in a downturn.

COMPANY	SEMICONDUCTOR SALES (in millions)	TOTAL SALES (in millions)
1. NEC	$3,240	$19,665
2. IBM	$3,100	$54,217
3. Toshiba	$2,980	$26,027
4. Hitachi	$2,560	$34,919
5. Motorola	$2,380	$6,707
6. Texas Instruments	$2,150	$5,595
7. Nat'l Semiconductor	$1,725	$1,868
8. Philips	$1,550	$26,021
9. Fujitsu	$1,450	$14,965
10. Matsushita	$1,435	$34,051
11. Intel	$1,350	$1,907
12. Mitsubishi	$1,185	$15,543
13. Sharp	$1,065	$8,314
14. AT&T	$1,000	$33,598
15. AMD	$997	$997

Sources: Integrated Circuit Engineering estimated 1987 semiconductor sales; Daiwa Securities estimated total sales for Japanese companies.

Jan Vardaman, a consultant with TechSearch International in Austin, licenses Japanese technology in the U.S. and Europe. Her conclusion: "Any company that is counting on flexible manufacturing as its sole advantage over the Japanese is living in a world of fantasy."

Rodgers and most U.S. chipmakers want to avoid doing battle in the markets that the Japanese have trained their guns on. Over the past five years more than 100 U.S. start-up companies have built businesses in markets too small to interest the Japanese. As their niches have grown and the companies expanded, they have had to face the Japanese more directly. Take LSI Logic, a 1981 start-up that helped create the market for application-specific integrated circuits, or ASICs—chips tailored to an individual customer. ASICs are one of the fastest-growing sectors of the business; worldwide sales last year totaled some $6 billion, about 20% of the total market for integrated circuits, according to Dataquest. By 1992, Dataquest estimates, sales will total $14.7 billion. LSI Logic, which had $262 million in sales last year, is one of the two small companies aggressively supporting Sematech. Chief Executive Wilfred Corrigan finds himself surrounded by Japanese rivals who are already competitive, especially in the more commoditylike lower end of his business.

That forces him to develop ever more sophisticated products. LSI has just joined the rush to produce RISC microprocessors, which handle far fewer instructions than today's most widely used microprocessors but which execute them with blazing speed. Using this technology, LSI plans to build increasingly sophisticated semiconductors that will capture the power of a desktop workstation on a single chip. A vocal contingent of chip and computer manufacturers argue that RISC will bring about the next technological revolution in the chip business. By dramatically increasing the operating speed of microprocessors, RISC could bring to the average worker computing speeds available today only in large mainframe machines. Early versions of RISC microprocessors run at speeds four times faster than those of popular 32-bit microprocessors. Within 18 months some manufacturers hope to have prototypes that will run at least ten times faster.

Whether RISC revolutionizes the industry or not, the U.S. appears firmly entrenched as the leader in the world of microprocessors and related peripheral products, a $5-billion-a-year business. For the next few years the fiercest battle in the industry will be for control of the market for 32-bit microprocessors, the chips that power the newest personal computers. Intel and Motorola dominate this market, which will total $636 million in sales this year and could reach $1.5 billion by 1992, according to Dataquest. Motorola has a slight advantage in overall sales, but Intel's chip is at the heart of the new IBM PS/2 personal computer. Motorola has just introduced a 32-bit RISC microprocessor, while Intel has announced no plans to enter the market.

Suicidal as it seems, with the dollar's fall, a few chipmakers are even eager to go toe to toe with the Japanese once more in the manufacture of DRAMs, a $3.1 billion business last year that could reach $5.2 billion by 1991. Technology moves so rapidly that getting back into the DRAM business is no mean feat. Each generation of DRAMs holds about four times as much information as the one before. With each increase in storage capacity come new production problems. As more and more circuits are squeezed onto a sliver of silicon, the circuit dimensions shrink, demanding new generations of ever costlier manufacturing equipment. By missing a generation, a company steps off the learning curve. Recognizing that it couldn't jump back in alone, Motorola teamed up with Toshiba, a Japanese manufacturer that was already producing one-megabit DRAMs, the highest capacity on the market today.

ED KASH

A champion *of Sematech, Charles Sporck wants to overtake the Japanese in manufacturing skill.*

Motorola's decision has encouraged other semiconductor manufacturers to consider reentering. Only three firms, Intel, National Semiconductor, and AMD, have enough sales volume—about $1 billion per company—to justify spending the $200 million needed to build a fabrication line. The player seemingly most eager to suit up again is Sporck of National Semiconductor. Like most semiconductor manufacturers, Sporck looks at DRAM production as a technological testing ground for his company. The process of fabricating new generations is technically demanding; because the chips are produced in such volume, manufacturers can use them to hone their skills for making ever more densely packed integrated circuits. Says Sporck: "There is no question that DRAMs offer the ideal vehicle for making technological progress. I think it's a real disadvantage to this industry not to be in that business."

But for National Semiconductor to get back into it would require a partnership similar to the Toshiba-Motorola arrangement. And Sporck would have to be able to look out over the next few generations of DRAM development and foresee reasonable rates of return—meaning no cutthroat competition from the Japanese. "It's not a business that you can diddle with," he says. "You're all wet or you're all dry." So will National Semiconductor go back to making DRAMs? Sporck won't say. "I'm not anxious to make that decision and then come around a few years later and tell the stockholders that I'm getting out for the second time," he explains. "That would be more than embarrassing."

Ultimately Sporck's decision must hinge on his ability to raise capital. That in turn will depend on his relationships with the buyers of DRAMs—the toymakers, computer manufacturers, and others who consistently shop for the cheapest chips and don't care where they are produced. As parts of large corporate groups, Japanese chip manufacturers have a built-in demand for their chips and a dependable source of capital. Over time their sales and profits tend to be less volatile than those of independent producers.

Chipmakers and their customers have recently been talking about building stronger, longer-lasting relationships, but the pressure on the customers to cultivate such ties is strongest in times like these when critical parts are in short supply. Many semiconductor makers doubt that much will come of chip users' new willingness to discuss long-term contracts. But Sporck notes a change in the environment that could make the difference: "We've never been in a period like this. For the first time U.S. electronics companies are dependent on their Japanese competitors for DRAMs. I don't think anybody will feel comfortable with a situation where their competitor has the ability to shut them down."

Japan's large, vertically integrated companies can invest heavily and accept low rates of return for long periods in order to gain market share. IBM and AT&T can match the investment if necessary, and niche chipmakers can simply avoid competing with the Japanese. But other large U.S. merchant manufacturers, particularly Intel, AMD, and National, cannot avoid some direct Japanese competition and probably don't have the stamina to withstand it.

ONE SOLUTION is for American chipmakers to be acquired by their customers, forming integrated entities like their Japanese competitors. But except for IBM and AT&T, the biggest U.S. companies have shown little ability to compete in semiconductors. A host of them, including GE and RCA, fell victim to scrappier competitors. Says Gordon Bell of Ardent Computer, onetime vice president of engineering at Digital Equipment Corp.: "If the solution is that you've got to be big to compete with the Japanese, forget it. The only thing that is keeping America strong are these wild startup companies."

Another solution is equally foreign to U.S. companies: expanded industrywide cooperation. With the cost of building new fabrication facilities soaring, the industry could benefit from sharing factory space. Sematech may help, but the real barrier to further action is the mistrust of other companies built on years, even decades, of competition. Quite apart from possible antitrust problems, it appears easier for Motorola to bring itself to team up with Toshiba than for two U.S. competitors to share a factory.

The industry probably won't solve its structural problems, which will undermine its ability to compete—especially in the next downturn. The Japanese may have learned a lesson from the last semiconductor recession. But the Koreans and Taiwanese, among others, remain unschooled. They may be willing to pay the tuition necessary to gain a major place in the business—even if that tuition includes big losses in price wars. ■

COMPETITION

JAPAN'S CARMAKERS TAKE ON THE WORLD

They have solved their yen problems faster than anyone imagined they would, and could pass the U.S. and Europe in the global auto market by the end of the 1990s.

■ *by Alex Taylor III*

THE SIGHS of relief around Detroit are almost palpable. For the first time since the Japanese upset the comfortable oligopoly of U.S. automakers in the early 1970s, events seem to be going against them. At import showrooms, sales are lagging as car buyers register sticker shock. A compact four-cylinder Honda Accord carries a $16,245 price, nearly $2,000 more than a full-size V-6 Buick LeSabre. Dealers are offering cash rebates on Japanese models for the first time ever. American cars, meanwhile, are better looking and better built than ever before. General Motors, Ford, and Chrysler are starting to think they can win back for keeps some of the market share they began losing 15 years ago.

Not so fast, Detroit. By squeezing margins and driving down costs, the Japanese have licked the problem of the expensive yen faster than anyone thought possible. Within 18 months they will be building 1.4 million cars in the U.S., more than Chrysler produces, and tackling the very heart of the domestic market with Taurus-size family sedans. Five years from now the Japanese are likely to control as much as 35% of U.S. car sales—up from 28% today and only 8% 12 years ago. That would make the Japanese collectively as big as GM.

Volkswagen, Renault, and Fiat had better watch out too. The Japanese are on the move in Western Europe, where they have a big edge in manufacturing productivity and product quality. Meanwhile, they retain a stranglehold on business in their home country, where overnight the formerly stagnant auto market has turned into a barn burner.

Offshore production: *Honda makes engines as well as cars in the U.S. By 1991 these uniformed "associates" in Anna, Ohio, will be turning out 500,000 engines annually.*

Others aspire to the title, but, led by Toyota and Honda, the Japanese are on their way to becoming the first truly global automakers. By 1992 they will be about even with U.S. and Western European manufacturers in share of world auto production (see chart). Since they are adding production while North American producers cut back and the Europeans grow slowly, the Japanese will be producing more cars than anyone else by the end of the decade.

High-tech, *human touch*

Rivals around the world are in disarray. General Motors, which sold 18% of the world's 43 million vehicles last year, is preoccupied with problems in North America. It has generated precious little synergy from its big European subsidiaries, Vauxhall and Opel. The world's No. 2 automaker, Ford, is red-hot right now and more globally integrated than any other non-Japanese company. But it can stumble when it tries to market a car line on different continents, as its disappointing experience selling the German-made Merkur in the U.S. demonstrates. Europe's Big Four—Volkswagen, Fiat, Renault, and Peugeot—haven't seriously lifted their horizons beyond the Common Market's borders.

Nor are the Japanese threatened seriously by manufacturers from South Korea and other newly industrialized nations, widely predicted just a few years ago to be the coming wave of low-cost producers. After only two years in the U.S., Hyundai has become the big power in the under-$8,000 segment; it should sell 300,000 cars in 1988. But quality problems and a technology gap will hurt Hyundai as it expands its base. Automakers in Brazil, Malaysia, Yugoslavia, and Taiwan, trying to duplicate Korea's success, are several years away from making a dent.

Japan's latest lesson in world-class competitiveness is its aggressive handling of *endaka*—the expensive yen, which has risen 72% in value since October 1985. Over the same period, the Japanese raised their car prices only 30%, while Detroit was hiking *its* prices by about 12%. Says Robert R. Reilly, Ford's executive director of corporate strategy: "We have been surprised, though not shocked, by their ability to absorb price increases. Anybody who counts the Japanese out when they hit a rough patch is kidding himself."

How did the Japanese manage it? Raw materials used in production, such as oil and plastic, are priced in dollars and have declined in cost when translated to yen. U.S. distributors and dealers have been shaving their gross profit margins, which account for some 30% of the typical car's price. Instead of charging as much as $3,000 over the sticker, as they did for some Honda models until as recently as this year, import dealers began offering discounts.

What surprised Detroit most was how successful the Japanese have been in cutting production costs. Nissan, plagued by falling sales both in Japan and the U.S., has worked especially diligently. It knocked its operating costs down 20% last year and has targeted hits of

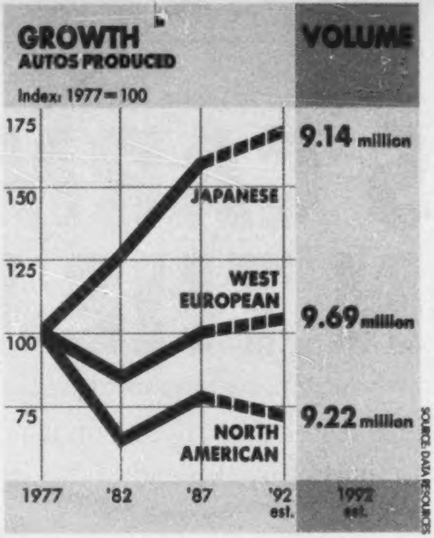
PHOTOGRAPHS BY OVAK ARSLANIAN

17% this year. Nissan sent 5,000 central office workers out to its dealerships to sell cars and made dozens of *kaizens*—continuous cost improvements in manufacturing. Says Maryann N. Keller of Furman Selz Mager Dietz & Birney, a New York brokerage firm: "The Japanese are right now reevaluating every single facet of doing business to become more efficient and build better cars."

The process should keep them competitive despite further strengthening of the yen. The WEFA Group, a Pennsylvania forecasting firm, sees the yen, 125 to the dollar recently, reaching 110 by the end of this year and continuing to strengthen until it hits 105 in 1993. Nonetheless, WEFA estimates that the Japanese cost disadvantage bottomed out last year. It expects the price gap in compact models to shrink from $1,967 per car in 1987 to around $1,000 by 1990.

That is still a huge difference, but Japan's automakers are compensating by extending their product line into costlier vehicles with more features, where price is less of a factor. Their strategy is to offer more car per car than anyone else, both by developing new technologies and by improving existing products. Honda is a master of the process even among the Japanese. The company employs 50% more engineers per car produced than GM. Because Honda builds only ten model lines, against 47 for GM in the U.S. alone, that engineering talent can be more directly focused.

Honda stays ahead by completely renewing its cars every four years. Ford, by contrast, has kept the subcompact Escort in production essentially unchanged for eight years. Honda also makes a fetish of technical improvements. It has been adding costly "double wishbone" suspension to its cars to provide slightly better handling. Detroit's bean counters would surely not approve, since few average drivers notice the change. But through an accretion of such refinements, Honda has put its cars in a class by themselves.



SOURCE: DATA RESOURCES

Going Nowhere but Up

Manufacturing around the globe, Japanese automakers are fast catching up with their European and American rivals.

This approach helps explain how Honda defied conventional wisdom to pull off the marketing triumph of the 1980s with the $25,000 Acura Legend. When Honda introduced the car in 1986, the Japanese were so associated with economical compact-size models that experts figured they would find it impossible to market luxury cars. By 1989, 350 U.S. Acura dealers are expected to sell more than 150,000 cars annually at prices from $15,000 to $30,000.

Toyota and Nissan will leap another couple of steps up the price ladder in 15 months when they launch two car lines with a top sticker of around $35,000: the Toyota Lexus and Nissan Infiniti. Like a new Acura sports car also in the planning stages, these will be closer to BMWs and Mercedes than they are to other Japanese cars. The most expensive Infiniti is so big and powerful that it may even carry a gas-guzzler tax.

At the lower ends of the Lexus and Infiniti lines will be $20,000-plus V-6-powered models that could be far more significant than the bigger cars for the future of Japanese autos in America. They look like an opening wedge into the highly profitable heart of the U.S. car market: family sedans and midsize coupes, a segment that GM owned for years until the success of the Ford Taurus. Says James Mateyka, a vice president of the Booz Allen Hamilton consulting firm: "The Japanese represent a real threat in the intermediate class."

ONE IMPARTIAL SIGN of the Japanese mystique is the price their products command in the used-car market. IntelliChoice of San Jose, California, has published a detailed guide to the ownership costs of 700 different models. It found that only four brands retain more than 70% of their value five years after they were purchased: Porsche, Honda, Toyota, and Jeep, now owned by Chrysler. Mazda finished just behind Mercedes-Benz with 68%, and Nissan recorded a 62% residual value. Chevrolet, the highest-ranking American passenger car, kept only 59%.

Japan's mastery of manufacturing helps explain its advantage. In the most far-reaching study of its kind, John Krafcik, a consultant to MIT's International Motor Vehicle Program, measured productivity and quality at 38 automobile plants around the world

THE HIGH PRICE OF BEING JAPANESE

In this case it's about $6,000 for cars that are basically similar. Both are four-door sedans with the same length and height; the Taurus is four inches wider. Though different dealers cut different deals, each car typically sells for about $2,000 less than its sticker price in today's market. To knock $790 off the Toyota's price, delete the sunroof option.

TOYOTA CRESSIDA

Engine: 2.8 liter six-cylinder
Passenger space: 90 cubic feet
Est. sales price: $22,000.

FORD TAURUS LX

Engine: 3.8 liter six-cylinder
Passenger space: 99.5 cubic feet
Est. sales price: $16,200.

DOUGLAS KIRKLAND—SYGMA

ROBERT WALLIS—JB PICTURES

Detroit-Style Hoopla . . .

SEIJI FUKASAWA

. . . vs. Japanese Traditionalism

In Japan's hot auto market, American selling techniques are vanquishing the old ways. Salesmen still call on customers at home or in the office, but more buyers are heading for showrooms, and new cars, such as this Toyota Carina, get glitzy kickoffs.

during 1987. Krafcik looked at employment and output levels at each plant and then adjusted the results to take into account the complexity of the product and the number of parts that were made on the site. He found that the average Japanese plant is 39% more productive than Detroit's, and an astounding 88% better than the average factory in Western Europe.

Not coincidentally, the Japanese also built the best cars. Using data from the 1987 U.S. owners' survey by California's J.D. Power & Associates, Krafcik developed an index that measures assembly quality in such key areas as body integrity, paint quality, and electrical connections. He found that Japanese brands sold in the U.S. averaged 44 assembly defects per 100 cars, while Detroit's had 87 and European cars sold in the U.S. had 90.

Though the ingredients of the Japanese manufacturing system that produces these results are numbingly familiar by now, they remain difficult to emulate. At the system's core is a culture in which the assembly line workers maintain their machines, ensure the quality of their work, and improve the production process. Detroit is catching up—two Big Three plants outproduce the average Japanese facility—but some deeply embedded advantages keep the Japanese ahead: a dedicated supplier network producing top-quality parts, easy-to-build product designs, and a well-educated work force.

The Japanese production system is so refined that it is difficult for even the Japanese to duplicate. Their North American plants are not as good as the home factories, though they are still better on average than Detroit's. Take Honda's five-year-old plant in Marysville, Ohio, a production engineer's fantasy come true. Manned by young, energetic, white-uniformed "associates" of both sexes who practically whistle while they work, it will pump out 360,000 Civics and Accords this year, making it one of the most productive auto plants in the world. Yet Marysville cars, which contain 60% U.S. parts and labor, have twice as many assembly defects as Japanese Hondas, according to Krafcik.

HONDA DISPUTES Krafcik's findings. It contends that his data are out of date and based on too small a sample. But Honda and other Japanese manufacturers also complain that they have to make up for the poor quality of parts produced by U.S. suppliers. Says Shoichiro Irimajiri, president of Honda of America: "We have had bad news about quality and delivery. Most of our suppliers are stable now, but some are struggling." In a few cases, Irimajiri says, prototype parts were fabricated in one plant, but production runs were made in another factory, resulting in uneven quality. U.S. suppliers had difficulty reading Honda blueprints for advanced jigs, dies, and tools.

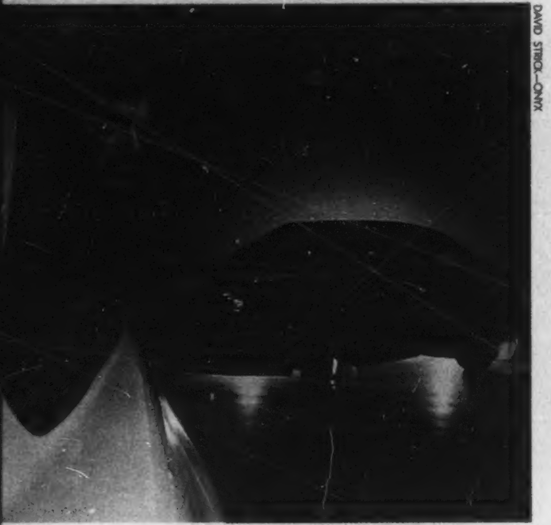
Some Japanese automakers have been urging their key suppliers, which they often own wholly or in part, to set up shop in the U.S. Says Jay Chai, the New York–based executive vice president of C. Itoh, the big Japanese trading company: "The automakers have been spoiled by their suppliers. They can't duplicate the quality they get in Japan." Some 60 Japanese parts makers have already located in the U.S.; by 1990 there may be as many as 150.

Their arrival has alarmed American competitors. Says Lee Kadrich, the director of government affairs and international trade for the Automotive Parts and Accessories Association: "These migrant plants are likely to displace American parts firms' sales to domestic carmakers."

The suppliers' alarm turned to fear when Bridgestone agreed to buy Firestone this spring for $2.6 billion. Paul Anderson, a Booz Allen senior vice president based in Chicago, says that at least one Japanese automaker is looking for small U.S. suppliers it can buy and control. No purchases have been announced so far, but it does not take an astrologer to figure out what the future holds.

One reason is that the future for Japan's auto industry lies in producing cars in North America and Europe. No Japanese automakers have declared plans to build more plants in the home country. Nor, despite widespread expectations to the contrary, will they soon try to supply the world from newly industrialized countries. At Honda, which has built motorcycles in 30 different countries, North American President Tetsuo Chino warns that the benefits have been exaggerated. "If you see the cost of production in those countries, it is not too advantageous to manufacture there," he says. Good suppliers are even harder to find in the NICs than in the U.S. Further costs are imposed

REPORTER ASSOCIATES *Sally Solo and H. John Steinbreder*



DAVID STRICK—ONYX

The top American *at Nissan, Thomas D. Mignanelli, hopes that new models like this coy 240SX will reverse a slide in market share.*

by local regulations, the need to develop a skilled work force, and transportation to distant export markets.

Toyota, the world's third-largest automaker, is on the cusp of a big expansion in the U.S. Next to its Georgetown, Kentucky, factory, where it will begin this summer building 200,000 midsize Camrys annually, sit 1,500 empty acres. They would make a good location for a truck plant; sales of trucks imported from Japan have been decimated by the effects of price hikes on top of a 25% tariff. Toyota could also take over the lion's share of the 240,000-vehicle capacity at its Fremont, California, venture well before 1996, when its agreement with GM expires. The Corolla assembled there is far more popular than its GM counterpart, the Chevrolet Nova.

By 1991, Japanese automakers will have their names on North American plants with a capacity of nearly 2.4 million vehicles. Close to one million will be produced in factories operated as joint ventures with U.S. automakers, so their products may carry either Japanese or American nameplates. But the 1.4 million purely Japanese cars will be equal to 17% of last year's U.S. production.

As GM has learned to its chagrin, having the capacity to build cars is not the same as being able to sell them at a profit. The trick is matching production with the market. Even with demand for imports slack, Toyota and Honda are selling all the cars they can make in America or export to the U.S. under their "voluntary" import quotas. Since it is short of cars, Toyota still has about the same number of dealers it had eight years ago. If the quotas are removed next April, as Japanese government sources now suggest they will be, the auto companies will still have a strong incentive to produce in the U.S. With the yen below 130 to the dollar, Honda can build a car more cheaply in Ohio than in Japan. Within 30 months it expects to be exporting 70,000 cars a year from the U.S. to Japan and Europe.

Import restrictions are now propelling Japan's automakers toward building in Europe, just as they did in the U.S. seven years ago. The Japanese compete formidably by exporting to such Common Market countries as the Netherlands and West Germany, where they have relatively free access. But in France their cars are "voluntarily" limited to 3% of the market. A post–World War II treaty with Italy originally designed to prevent *Italian* cars from flooding *Japan* limits them to only 3,000 vehicles per year. So the Japanese are effectively restricted to the 11.3% of the European market they achieved in 1987, which still put them ahead of Renault and GM Europe.

When the Common Market nations lower their intercountry trade barriers in 1992, the Japanese are likely to find new roadblocks to free trade replacing the old ones. As one Common Market official warned in an April speech in Tokyo: "Japan sells nearly 1.2 million cars to the EEC while importing only 97,000. We want to see an improvement in that trade balance."

The Japanese are already mapping out the obvious solution, and it offers little solace for Fiat, Peugeot, et al. Nissan has started up a plant in Britain with a capacity of 200,000 vehicles; Toyota and Honda are said to be looking for sites. Europe's hothouse automakers are vulnerable. Consultant Krafcik points out that their plants are not only the least productive in the industrial world but also make the narrowest ranges of products.

IT WILL DOUBTLESS take the Japanese years to crack local loyalties in Europe, but while they're waiting they can subsidize overseas operations with suddenly fat profits at home. Reduced incentives to save, low interest rates, and a booming economy have lit a fire under the once-stagnant Japanese auto market. New-car sales are expected to rise 8% or more this year on top of a 7% advance in 1987. Per capita car ownership in Japan is only half as much as in the U.S. Even given Japan's claustrophobic highways, there is ample room for growth. A Nissan sales executive, interviewed by FORTUNE in Tokyo, said he expects the Japan boom to continue for four or five more years.

The biggest gainers have been luxury models, up 145% this year. Nissan has doubled production of its new $40,000 Cima to 7,000 per month. Says Morgan Stanley vice president Scott Merlis: "The Cima has become the 'in thing' to drive to the golf course, where memberships average more than $100,000." Imports are growing fast too, up more than 40% last year from a minuscule base of 3.1% of the market. By 1998, according to the Mitsubishi Research Institute, im-

READY FOR A $35,000 TOYOTA?

That will likely be the sticker price of this Lexus model when the line is introduced 15 months from now. As the artist's rendering suggests, it is unlike any Japanese car ever seen before, with its extreme aerodynamic shape and potent V-8 engine. Like its philosophical predecessor, the Honda Acura (and its competitor, the Nissan Infiniti, which will also debut in late 1989), the Lexus will be marketed through a separate dealer organization. The Japanese chose their lofty price points carefully—higher than entry-level Mercedes and BMWs, but several thousand dollars below the German middle-of-the-line models. No Lincoln costs more than $30,000; Cadillac's $56,000 Allante has been selling slowly.

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ports will account for 15%. Together, Toyota and Nissan control 70% of Japanese car sales, though Nissan has lost five share points over the past decade while Toyota has gained eight. Honda has doubled its market share in the same period, putting it in third place with 11%. The dominance of these three makes it unlikely that Japan will end the 1990s with nine independent auto companies.

THE JAPANESE VERSION of the mating game is figuring out how the other six automakers will sort out. Current ownership patterns suggest one direction. Toyota owns 15% of Daihatsu, and Nissan 5.8% of Fuji Heavy Industries (Subaru in the U.S.). Mazda, weakened by a brush with near-bankruptcy in the mid-1970s and hampered by a narrow product line, is 25% owned by Ford. GM owns 41.6% of Isuzu and 5.3% of Suzuki; both companies supply cars to GM for sale as Chevrolets. If GM does not buy them outright, they could merge.

Are the Japanese invincible? Well, not quite. Ford's Probe, praised for its racy styling and backed by Ford's dealer body, is selling much better than the Mazda MX-6, a mechanical twin that is produced alongside it in Flat Rock, Michigan. And then there is troubled Nissan. Its cars are nearly the equals of anyone's in quality and technology, but its U.S. sales fell 25% last year and have dropped another 18% this year. Nissan's image blurred when it began phasing out the Datsun brand seven years ago. Honda's success and a line of dated-looking cars forced the company into the also-ran category.

To recoup, Nissan has reorganized its North American operation and hired Thomas Mignanelli, 43, a Lincoln-Mercury sales pro, to get it back in sync with U.S. car buyers and accelerate what Nissan President Kazutoshi Hagiwara calls the "Americanization of Nissan." Over the next year it is launching four new models. Security analysts who have seen pictures of the new cars praise them, but whether Nissan can sell them remains a question mark.

Events have a way of breaking in favor of the Japanese. When the second oil crunch and double-digit inflation hit in the late 1970s, they had cheap, economical cars to sell. When the yen burst through the roof, they had U.S. factories ready to go. But success, as we all know, goes to those who make their own luck. As they have proved by staying competitive in a ruinous currency environment, the Japanese will continue to make headway regardless of how the breaks fall in the future. F

REPORT CARD ON THE BABY BELLS

Going on five years since AT&T's breakup, BellSouth gets an A+, Pacific Telesis is most improved, and Nynex isn't living up to potential. The others? Read on. ■ *by Kate Ballen*

IF YOU THINK twins have identity problems, imagine what it's like for septuplets. The regional Baby Bell companies, which took over local telephone service when the government broke up American Telephone & Telegraph, have poured more than $1 billion into advertising since their birth in January 1984. Yet few who press the Touch-Tone buttons know the phone companies behind them. The Bells seem to share a cookie-cutter similarity and the uniformly boring management that goes with regulated monopolies. Those perceptions are wrong. Ma Bell's offspring already display strong—and growing—differences.

"The three D's are what distinguish them," says Joel Gross, a security analyst at the Donaldson Lufkin & Jenrette brokerage firm. He refers to demographics, deregulation, and diversification. Some of the Bells, serving regions with booming economies and sympathetic state utility commissions, have been luckier than others. All have used their rich cash flows to buy nonregulated businesses—cellular phone networks, computer stores, and real estate—but their acquisitions have ranged from brilliant to bumbling. In running the good old reliable phone business, too, some have made a more impressive showing than others.

The seven Bells began life with silver spoons. Each inherited an average $17 billion in assets when 22 local phone companies were divvied up among them. "They are seven of the strongest companies you'll ever see," says Jack Grubman, a security analyst with Paine Webber. "They are just like cash registers." Every one ranks among the top ten on FORTUNE's annual list of the 50 largest utilities. Revenues last year ranged from $8 billion at Southwestern Bell to BellSouth's $12.3 billion.

These titanic tots get their handsome, steady income from providing local phone service to some 80% of the U.S. population. The Bell managements have diligently cut costs, trimmed staffs, and pared debt. In 1987 the regionals together earned $8.4 billion on total revenues of $69.8 billion. Former parent AT&T, left with the competitive long-distance part of the phone business, plus the manufacture of telecommunications equipment and a money-losing computer business, earned only $2 billion on $35.6 billion.

OVAK ARSLANIAN

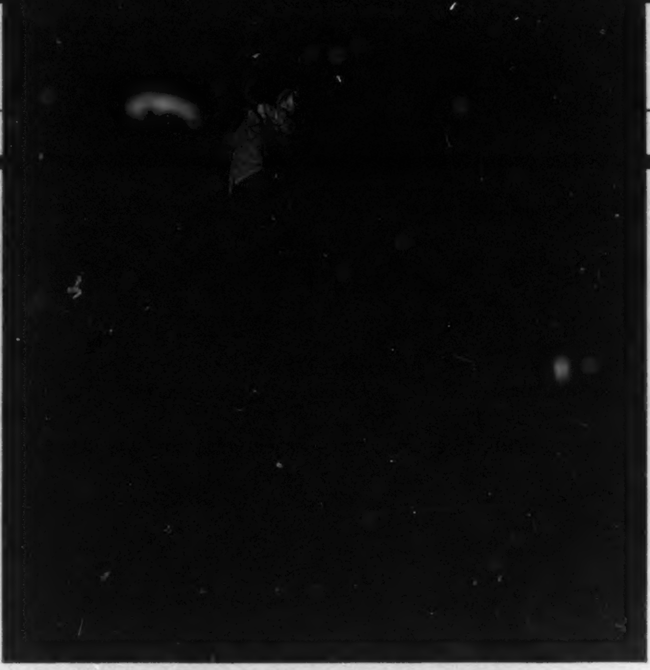
This Nynex center *in Manhattan monitors phone traffic, the Bells' biggest moneymaker.*

Far from being content with their enviable lot, the Bells chafe like toddlers kept in a playpen. Most states set a limit on how much they can earn, based on their total debt and equity. Nearly all the companies have reached their allowed rate of return, which currently works out to 12% to 16% on equity. Thus much of the growth in basic phone earnings must come from increases in the capital base on which earnings are figured—more switches and lines—rather than through gains in efficiency. While earnings from productivity gains that exceed the ceiling may go unchallenged by utility commissions for a while, they ultimately tend to go back into customers' pockets via lower phone rates. "We have our hands tied behind our back," says Zane Barnes, CEO of Southwestern Bell. "We can't reach our potential." Adds David Wenner, senior partner with the McKinsey & Co. management consulting firm: "There just isn't enough incentive for a company to be efficient or stick its neck

REPORTER ASSOCIATE *Edward Prewitt*

out with new technology."

The Bell Seven have been crying for freedom, and some of the states have begun to listen. About half are considering or have already instituted changes, including one that would cap phone call charges rather than the companies' earnings. "Why should the state care about the company's profit if prices are fair for the consumer?" says Philip O'Connor, former head of the Illinois commission. Nebraska has already removed most of the earnings caps on U.S. West's phone business. New York has instituted a system in which the phone company and customers share excess earnings: Nynex gets higher profits, customers get lower prices. Sometime this fall the Federal Communications Commission, which regulates the Baby Bells' calls across state borders, will decide whether to substitute price caps for earnings restrictions. Says Gerald Faulhaber, professor of public policy and management at the University of Pennsylvania's Wharton School: "Unless you remove these restraints, shareholders won't benefit from efficiency and market opportunities."


DAVID STRICK—ONYX

A climbing business: *cellular phones, like the one this consultant uses*

THE BELLS haven't sat back waiting for the shackles to loosen. "We have to get into nonregulated businesses to really grow," says Thomas Bolger, CEO of Bell Atlantic. Such businesses, scooped up in waves of acquisitions, now account for 7% to 15% of the regional companies' revenues.

The biggest profit maker is a business the Bells had all along—the yellow pages directories, which states regulate more loosely than phone service. Total publishing revenues for the seven companies hit a record $5.5 billion in 1987, according to Communications Trends, an advertising research company in Larchmont, New York. All the siblings are believed to be making money on the yellow pages despite competition, some of it from interloper Bells based elsewhere. A few special editions have been flops. Southwestern Bell just shut down Silver Pages, an advertising directory for the elderly. But as far away as Israel and Australia, residents can let their fingers do the walking in the company's local directories.

In the boldest venture beyond their traditional business, the Bells have shelled out more than $5 billion to buy and set up cellular telephone companies. With a cellular phone in a car or in the hand and linked by radio to transmitters dotted in a mosaic of overlapping "cells," a customer can stay in touch throughout a metropolitan region. Last year Southwestern Bell put down $1.4 billion for Metromedia's vast paging and cellular operations in New York City, Chicago, and elsewhere. And in February, BellSouth offered $710 million in stock for Mobile Communications of America, which has operations in the car-crazy Los Angeles and Houston areas. The Federal Communications Commission awards two licenses in every market. One is reserved for a local phone company, the other for a "nonwire" company, which later could sell out to a Bell company.

OFFSPRING THAT OUTPACED THE PARENT

COMPANY	AVERAGE GROWTH RATES		
	Three years through 1987		TOTAL RETURN Four years through 1987
	REVENUES	PROFITS	
BellSouth	5.4%	9.2%	26.5%
Bell Atlantic	8.4%	8.4%	26.9%
Nynex	6.1%	9.0%	27.8%
Pacific Telesis Group	5.3%	4.6%	25.6%
U.S. West	5.1%	4.2%	24.9%
American Information Technologies	4.5%	6.2%	26.0%
Southwestern Bell	3.6%	8.5%	22.9%
American Telephone & Telegraph	2.4%	14.3%	12.8%

The Baby Bells have rung up revenue gains and investors' total returns at a faster average yearly rate, compounded, than AT&T. The latter, playing catch-up, has enjoyed steeper profits growth.

"Cellular makes a lot of sense for the Bells," says Robert Morris, a telecommunications analyst with Prudential-Bache Securities. "They understand the technology, and besides, it has to do with phones." Dataquest, a California technology consulting firm, foresees some three million subscribers by 1992, vs. one million today, and annual revenues of $6.6 billion, up from $1.4 billion. But don't expect a phone in every car until prices fall. Currently subscribers pay a fixed charge of $25 to $35 a month, not counting equipment that typically costs $1,500, plus 17 cents to 33 cents per minute on local calls. While the state utility commissions oversee cellular operations, they have not placed any caps on earnings or prices. So far there hasn't been much earnings to put caps on, though most Wall Street analysts expect a big future payoff. Says James McCabe, a security analyst with Nomura Securities: "Although many of the wire companies are already profitable, it is going to take a few years before anyone sees a lot of black ink in cellular."

YET THE BELLS have not found diversification to be a growth elixir. Not until 1987 did one of the regionals—Bell Atlantic—break out its profits from nontelephone businesses. Even so, it recently unloaded a loser, its 16-store chain of computer stores. Pacific Telesis Group also just sold some of its computer stores and paging operations. "Intelligent diversification is important," says security analyst Edward Greenberg of Morgan Stanley. "But it pales in comparison with the enhanced growth that could come from the phone network as more deregulation occurs." Says Liza Draper, program director with the Gartner Group, a technology consulting firm in Stamford, Connecticut: "I just don't see them making much of themselves in businesses that don't have synergy with their network."

Most Bells see scads of synergy in businesses that are off limits. Federal Judge Harold Greene, who continues to preside over the AT&T breakup he approved, doggedly prohibits the Bells from moving into the long-distance business, with revenues of about $50 billion a year, and telecommunications equipment manufacturing, worth $25 billion.

The regionals find it especially galling that they can't tread on Ma Bell's long-distance turf. After all, she and other long-distance carriers such as US Sprint and MCI Communications cut into local phone companies' revenue when big corporate customers bypass local lines with microwave transmitters and other high-tech paraphernalia to make long-distance calls. Last year about 25% of the Bells' revenues came from fees long-distance carriers paid for local connections. When big phone users bypass the local network, the Bells get no fee.

The bypass argument is overstated, however. No company bypasses the Bells completely, and the practice seems to be increasing more slowly than in the past. "The issue of bypass is practically passé," says Edward Diamond, project manager with Eastern Management Group, a New Jersey consulting firm. Bypass may cost the regionals about $500 million a year in revenues. But, says Diamond, "it just has not been as big a problem as the Bells expected."

JUDGE GREENE has not been deaf to the Bells' pleas for easing the original breakup restrictions. Most recently he gave them the green light to transmit electronic information, such as databases like Nexis and recorded voice messages. Database transmission will probably be a Bell ringer: The volume is tremendous. But the regionals got less than they wanted, since they can only transmit databases, not own and develop them. Says William Weiss, CEO of American Information Technologies (Ameritech), which provides local service in the Middle West: "Why doesn't Greene just take off the wraps and let us evolve as we can?"

Though the Bells were conceived as equals, those with the fastest-growing populations and strongest economies have led charmed lives from the start. Favorable geography alone explains much of the balance-sheet strength of BellSouth, Bell Atlantic, and Nynex. It also helps to have a densely populated territory, such as Nynex's or Bell Atlantic's, where the investment in phone lines per customer is less than in the wide open spaces. A heavy proportion of business customers is also a plus. The average executive talks on the phone 59 minutes a day, according to Eastern Management Group. The typical residential customer gabs less and does much of it at night, when rates are low.

BellSouth, serving nine Southeastern states, is the heavyweight with the most assets ($27.4 billion) and profit ($1.7 billion). "It was an accident of birth that we were blessed with being a Sunbelt company with good growth," says CEO John Clendenin. Two of the fastest-growing states, Florida and Georgia, are included in his fiefdom,

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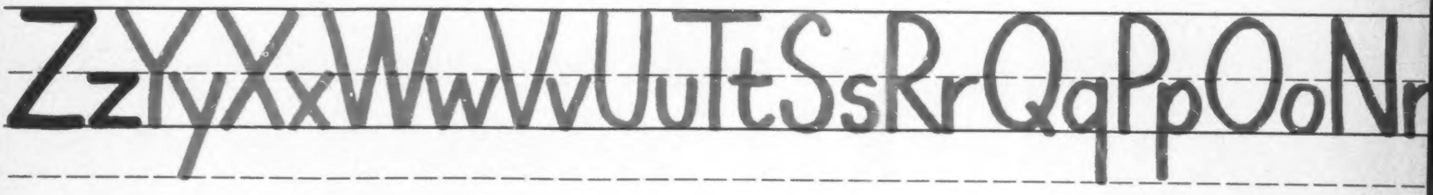

which helps explain why BellSouth boasts the most impressive earnings record among the regionals.

The business was already highly efficient when BellSouth took charge. The Southeast phone companies were AT&T's guinea pigs for testing such technology as fiber-optic transmission, and BellSouth has remained a technology leader.

Bell Atlantic, also favored with vigorous local economies, has run neck and neck with BellSouth for first place in revenue growth. This $10-billion-a-year company, which rules from New Jersey down to Virginia, is one of the most aggressive diversifiers among the siblings. "They are the first company to really prove you can have a wide-reaching and profitable diversification program," says Stephanie Georges, a security analyst with Salomon Brothers.

Within 15 months of AT&T's breakup, Bell Atlantic announced it was buying the chain of computer stores it now has sold. The shopping binge goes on. The company has picked up a large computer maintenance business, a software designer, and a financial services company. The unregulated businesses are growing 25% to 30% a year in profits. Bell Atlantic has disclosed that in 1987 its unregulated businesses earned $47 million before taxes, on revenues of $877 million. "By the end of 1991 we see ourselves as a strong industrial corporation with a utility core," says CEO Bolger. By then, he adds, half the company's revenues will come from unregulated businesses.

Bolger clearly does not suffer from the overcautious mentality of AT&T executives summed up by the widely used term Bell-shaped head. "Bolger is more willing to stir the pot," says Jack Grubman of Paine Webber. "He is a risk taker."

NYNEX, which serves hordes of chatterers in New York and Boston, has rung up the group's second-highest profit growth and highest total return to stockholders. The company's domain—New York plus New England—also boasts the largest number of business phone lines among the seven: ten million. But Nynex is not taking full advantage of its inheritance. "Nynex has the greatest potential to benefit from a more efficient operation," says Lap Lee, a security analyst at Salomon Brothers. "Until recently it really hasn't focused on replacing old technology or been as dramatic as some others in bringing down the head count."

The 1986 purchase of IBM's 31-state chain of computer stores for some $150 million could make Nynex's numbers worse. "It was their single dumbest decision," says Grubman of Paine Webber. "Even IBM could not make the stores profitable." But CEO Delbert Staley says he's not running the same business IBM got rid of. His stores have expanded their offerings to include various makes of computers and telecommunications equipment for business customers, he says, and are giving Nynex a national image. Staley estimates the chain will be profitable by next year.

Fate was less kind to Southwestern Bell, U.S. West, Ameritech, and Pacific Telesis. The first three have suffered from regional economic blues, the last from a history of harsh regulation. Half of Southwestern's

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phone business is in down-and-out Texas. U.S. West has the high cost of maintaining miles and miles of wires through empty cowboy country in its 14 states.

Ameritech, hobbled for a time by the Rust Belt recession, has overcome its disadvantaged start. "We have a fairly straightforward success story," says CEO Weiss, who is fairly straightforward himself. "We reduced our operating costs right away." These moves, plus a tight lid on spending for diversification, have paid off. Ameritech has been the champion Bell in return on shareholders' equity for four years running.

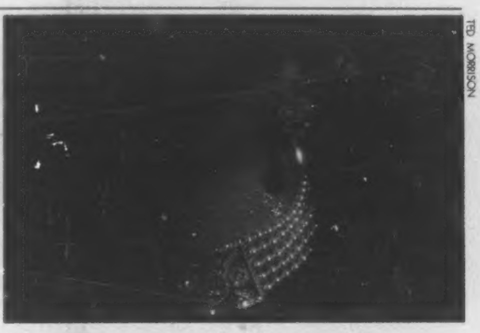
Pacific Telesis gets the award for the most improved. At birth this company was burdened with much obsolete equipment as well as a negative cash flow and the Bells' highest debt load. The financial weakness was a legacy from tough California regulators. "We've managed to pick ourselves off the ground," says Sam Ginn, who has just taken over as CEO. Pacific Telesis laid off employees, reduced debt, and modernized with a vengeance. The first Bell to plunge headlong into the cellular business outside its region, Pacific Telesis is now in four of the top ten markets, including Dallas and its own Los Angeles. "At first we thought the mobile phones would just be a status service," says Ginn, who spearheaded the acquisitions. "Now we are seeing cellular antennas even on the backs of Pintos."

IN ONE respect the Baby Bells differ hardly at all. From Ameritech to U.S. West, all get A's for service over the past four years. Customer surveys by the FCC and the U.S. Telephone Association, an industry group, show that the quality has not deteriorated since divestiture. Local phone costs, however, have gone up 35% on average. That's mainly because local service is not as heavily subsidized by the long-distance business as it was before the breakup.

The Bells can be expected to grow further and further apart. Before too many years they may be able to offer competitive services over the phone lines, including databases of their own, and even cable TV transmission. The time could come when the Bells find themselves in a competitive free-for-all with Ma and each other for long-distance phone accounts and equipment sales. "Whether they will be mature enough to do really well in an open market has not yet been put to test," says Wharton School's Faulhaber. Meanwhile the septuplets talk as though they can't wait to take the next exam.

COMPANIES TO WATCH

Carolee Designs Inc.


TED MORRISON

These fakes—choker and earrings—cost $230.

■ By picking up on fashion trends quickly, Carolee Friedlander has built a $16 million jewelry company in 12 years. Many of Friedlander's designs steal their styles from the past: the insignia of Britain's Royal Navy, the art deco movement, and the Duchess of Windsor's collection. This stuff looks real, though made of crystal and plated gold, silver, and platinum. Able to produce a new piece in only three weeks, privately held Carolee was the first company to imitate the famous Windsor jewels after the Duchess's trove was put up for auction last year. Most of the baubles go for $50 to $200 each, or about $2,000 for an entire collection. That may seem pricey, but it's still far from the $50 million that the Duchess's jewels commanded.

Continental Medical Systems Inc.

■ While many of America's private hospitals suffer a surfeit of empty beds, patients fill up the few facilities that specialize in rehabilitative medicine. Demand is surging as the number of disabled Americans keeps rising: More of us are living to an infirm old age, and emergency medicine is keeping accident victims alive longer. Founded in 1986, Continental is quickly becoming one of the largest companies in the fast-growing field. The Pennsylvania-based company's biggest business is operating four hospitals where teams of physicians and physical and occupational therapists help the victims of accidents, strokes, heart attacks, and neurological disorders to come back from their disabilities. This year Continental began building nine new rehabilitation facilities. The prices that patients pay are lower than at acute-care hospitals because the specialized units have less overhead. Financial analyst Peter Grua from the Alex. Brown firm thinks Continental's earnings will grow 200% this year to $5 million on revenues of about $110 million. The stock sells at 15 times his fiscal 1989 earnings estimate.

Jackpot Enterprises Inc.

■ Jackpot wins by betting on Americans' penchant for gambling. With about 1,600 electronic games of chance in 145 supermarkets, drugstores, and discount stores in Nevada, it is one of the largest owners of slot, poker, and blackjack machines outside the big casinos. In 1987 Jackpot's machines averaged over $17,000 for the house, well above the fixed fee Jackpot pays to lease space for its electronic banditos. Earnings increased 55% to $3.3 million in the year ended June 30, 1987. Paine Webber security analyst Lee Isgur recommends the stock, which trades on the NYSE at around $12.50, about 12 times expected earnings. Says he: "It's a money machine. Nevada is one of the fastest-growing states, and the state's gaming industry has grown at a rate of 12% annually for the past 40 years."

Advanced Marketing Services Inc.

■ This bookseller is piggybacking on the rapid expansion of discount warehouse chains. The San Diego–based company buys hard-cover best-sellers, mass-market paperbacks, and other general-interest books for a little less than bookstore chains pay. Then it ships the books to one of its seven distribution centers for resale at a 15% markup to such discounters as Price Club and Sam's Wholesale Club. As the discount warehouse industry grows from $12 billion in 1987 to an estimated $20 billion by 1990, analysts expect Advanced Marketing to maintain up to a 90% market share in book distribution. Insiders control 64% of the stock, which recently traded over the counter at $12, about 12 times earnings for the fiscal year ended in March. Profits rose 120% to $3.6 million on sales of $110 million.

—Sarah Smith

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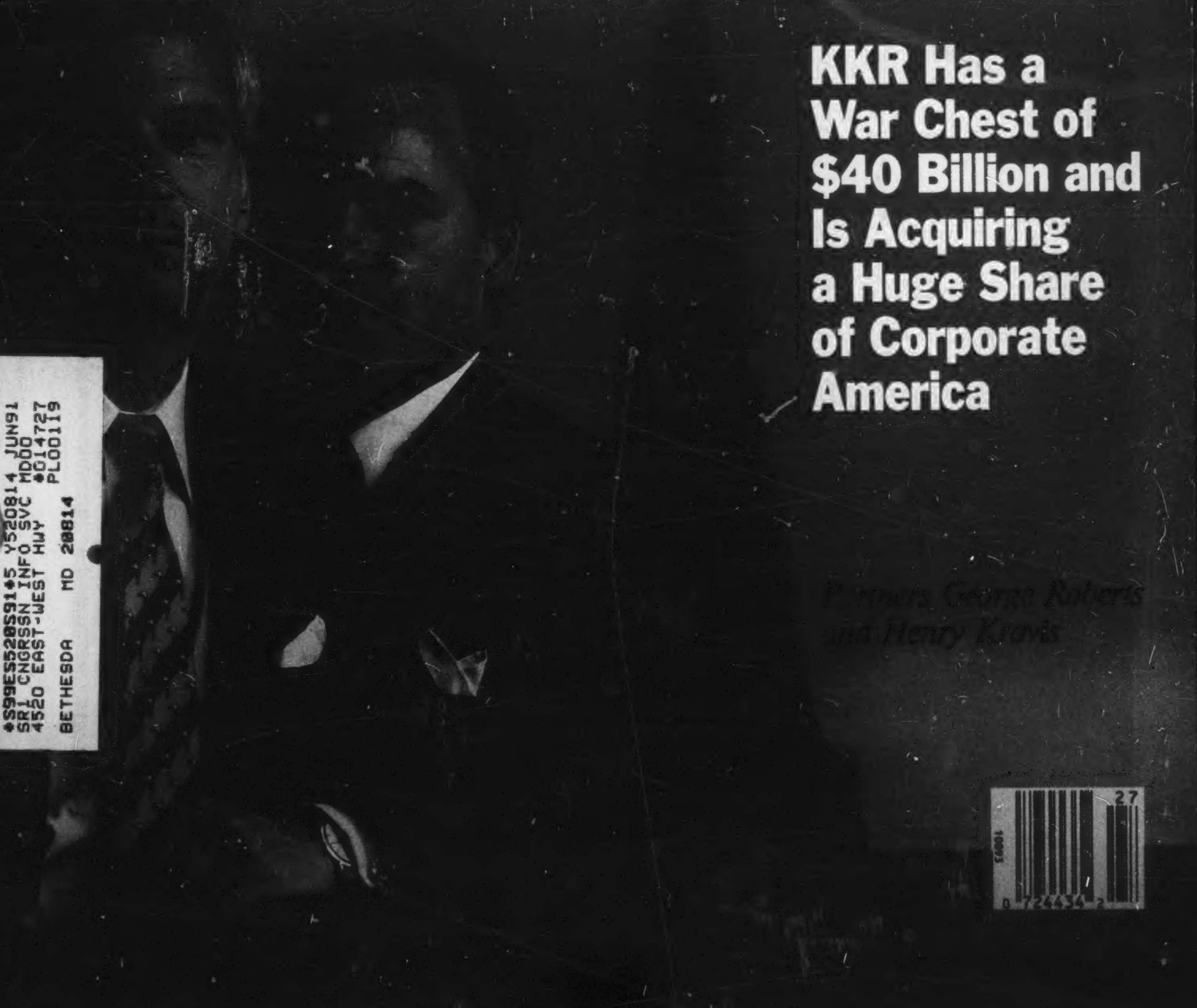

Partners George Roberts
and Henry Kravis

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COVER: George Roberts (left) and Henry Kravis were photographed in San Francisco by David Strick—Onyx.

"These are Type A people. The fact that they've made a lot of money doesn't matter. Each deal is a new challenge." PAGE 52

MONEY & MARKETS/Cover Stories

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Not just the biggest dealmaker, Kohlberg Kravis Roberts is a managerial empire almost as big as GE. Henry Kravis and George Roberts command $40 billion in buying power and have tough new thoughts about using it. *by Carol J. Loomis*

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"These burritos are the biggest in East L.A. They're the size of a cat."

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"I never planned too far ahead. I took an opportunistic approach, and opportunities always seemed to be there."

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"You put the program in the worst schools, go back a year later, and it's almost like a religious experience."

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"It's unnecessary to provide full cost-of-living allowances to retired millionaires."

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"If they were drowning to death, I would put a hose in their mouth."

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"If revenues aren't in the hundred millions in 18 months, I'm wasting my time."

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How's the weather? Around the globe, ominously warm. Climate researchers are increasingly convinced that the so-called greenhouse effect is at work, the result of man-made carbon dioxide and other gases building up in the atmosphere. The consequences could be especially severe for wheat farmers, shippers, electric utilities, and military planners. *by Anthony Ramirez*

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It's so easy to stifle a good thing. Germany's once mighty economy has bogged down, a victim of high taxes, rigid labor laws, and too much regulation. Unless Chancellor Helmut Kohl can bring about dramatic change in the next few years, West Germany in the 1990s could become what Britain was before Thatcher. Unfortunately, Helmut is no Maggie. *by Richard I. Kirkland Jr.*

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While Wendy's and Burger King were closing 149 unprofitable restaurants in nine months, McDonald's was opening a new one every 17 hours. We all know about the strict standards, Hamburger U., and so on. What *is* the secret? An unabashed admirer offers an explanation based on 30 years of high-cal research. *by Penny Moser*

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SINCE ITS FOUNDING in 1930, FORTUNE has been known for—among many other attributes—its distinguished design. It is full of lavish pictures and graphics that entice the eye, excite the mind, and convey the sweep and drama of global business. Design was recently cited as a major element in our National Magazine Award for general excellence. We are happy now to introduce a new design, one that we believe combines the best elements of the past and the future.

The new logo reaches back to FORTUNE's roots, with an elegant lettering that evokes the memory of our first issue. Pictured below are the logos of that issue, as well as our most recent issue and this issue. For our stories we introduce a typeface, Times Roman, that is bigger and more readable than the old print. And we will be able to say a bit more in our headlines with our new Franklin Gothic type. The Contents has been expanded from one page to two, and carries a summary of each story. We also have moved Fortune Forecast and Personal Investing to the front of the magazine.

Fortune
FORTUNE
FORTUNE

Logos: First, last, new

The design is essentially the work of art director Margery Peters, who collaborated closely with the editors. A veteran of *New York*, *Esquire*, and other magazines and a sometime composer of pop music, Peters joined FORTUNE in 1982 to help develop the previous revision in format. "The last logo responded to the values of high technology," she says. "Now people are looking to re-explore traditional values."

Assisting Peters was designer Frances Fifield, who constructed dozens of mock-ups for each section of the magazine until they found the combination of typeface and layout that worked best. Fifield and deputy technology chief David Sloan translated the design into the complex language of modern computers, so that an editor can load stories into the production system at the push of a button. Peters and her colleagues follow in the great tradition of magazine design. "When I look through the best magazines from the 1940s," she says, "there is a definite little voice speaking to me that has a lot to do not only with how the magazine is written but also with how it is presented." We hope you agree that FORTUNE's stories now live in an even more hospitable setting, and that our pictures, illustrations, and charts speak to you with an authoritative, pleasant voice.

Marshall Loeb
MANAGING EDITOR

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A WARMING WORLD:

Rising global temperatures could disrupt wheat farmers, electric utilities, and military strategy. Which companies win or lose depends on how well they plan ahead. ■ *by Anthony Ramirez*

A PHYSICAL CHILL settled on the 14th century at its very start, initiating the miseries to come. The Baltic Sea froze over twice, in 1303 and 1306-7; years followed of unseasonable cold, storms, and rains, and a rise in the level of the Caspian Sea. Contemporaries could not know it was the onset of what has since been recognized as the Little Ice Age . . . lasting until about 1700. Nor were they yet aware that, owing to the climatic change, communication with Greenland was gradually being lost, that the Norse settlements there were being extinguished, that cultivation of grain was disappearing from Iceland and being severely reduced in Scandinavia.

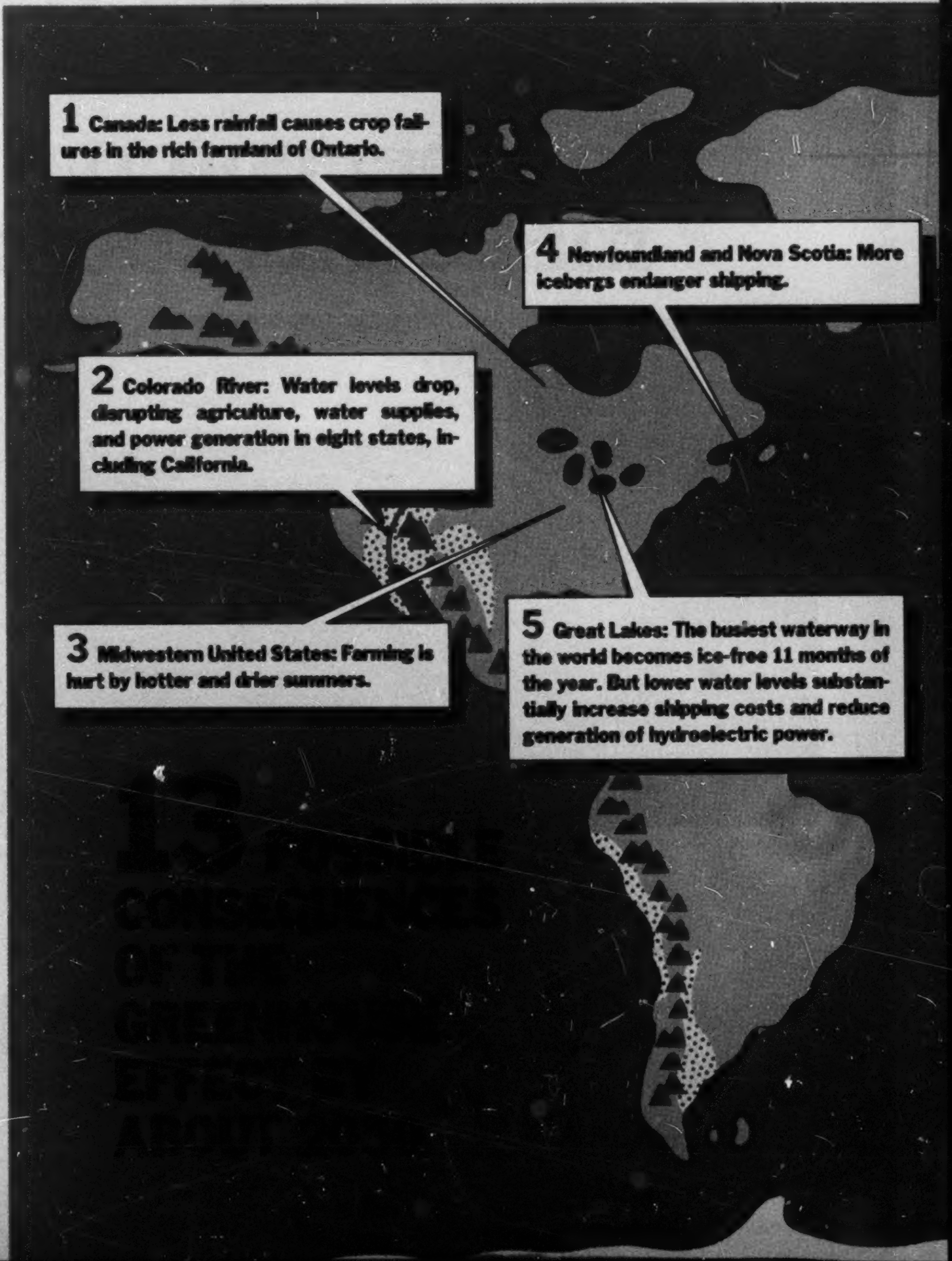
– Barbara Tuchman, A Distant Mirror

Like the 14th century, the 21st century is in for nasty weather—but of the opposite kind. Although the earth has undergone periods of warming and cooling in the past, scientists are now generally agreed that it is about to heat up more—and faster—than ever. By the likeliest scenario, the resulting climatic changes will bedevil farming, shipping, international trade, energy policy, and military strategy. Coping with dramatic global warming will not be easy, but ignoring it would be foolish. The best bets: conserving energy and using alternative energy sources, including nuclear power.

The threat is clear. Carbon dioxide from the burning of fossil fuels like oil, coal, and gasoline is rapidly accumulating in the atmosphere. So are gases like chlorofluorocarbons (CFCs), which are far less abundant but equally devastating. CO_2, CFCs, and the other gases come almost entirely from a variety of man-made sources like vehicle exhausts and industrial solvents. Only a modest amount derives from natural sources like microbes in the soil. In the earth's atmosphere the gases act like the glass in a greenhouse, which lets in sunlight but traps heat. By absorbing rather than reflecting the infrared radiation that produces heat, they are bringing about the relentless warming of the planet known as the greenhouse effect (see box, page 104).

"My feeling is that there's no way to stop it," says Walter Roberts, president emeritus of the National Center for Atmospheric Research (NCAR) in Boulder, Colorado, and an organizer of a year-long United States–Soviet Union conference on global warming that started meeting in May. "It may be a little bit smaller or it may be a little bit larger. But the greenhouse effect is going to come." He thinks global dependence on fossil fuels is so vast that it makes

REPORTER ASSOCIATE *Alicia Hills Moore*



1 Canada: Less rainfall causes crop failures in the rich farmland of Ontario.

2 Colorado River: Water levels drop, disrupting agriculture, water supplies, and power generation in eight states, including California.

3 Midwestern United States: Farming is hurt by hotter and drier summers.

4 Newfoundland and Nova Scotia: More icebergs endanger shipping.

5 Great Lakes: The busiest waterway in the world becomes ice-free 11 months of the year. But lower water levels substantially increase shipping costs and reduce generation of hydroelectric power.

13 [illegible] CONSEQUENCES OF THE GREENHOUSE EFFECT [illegible]

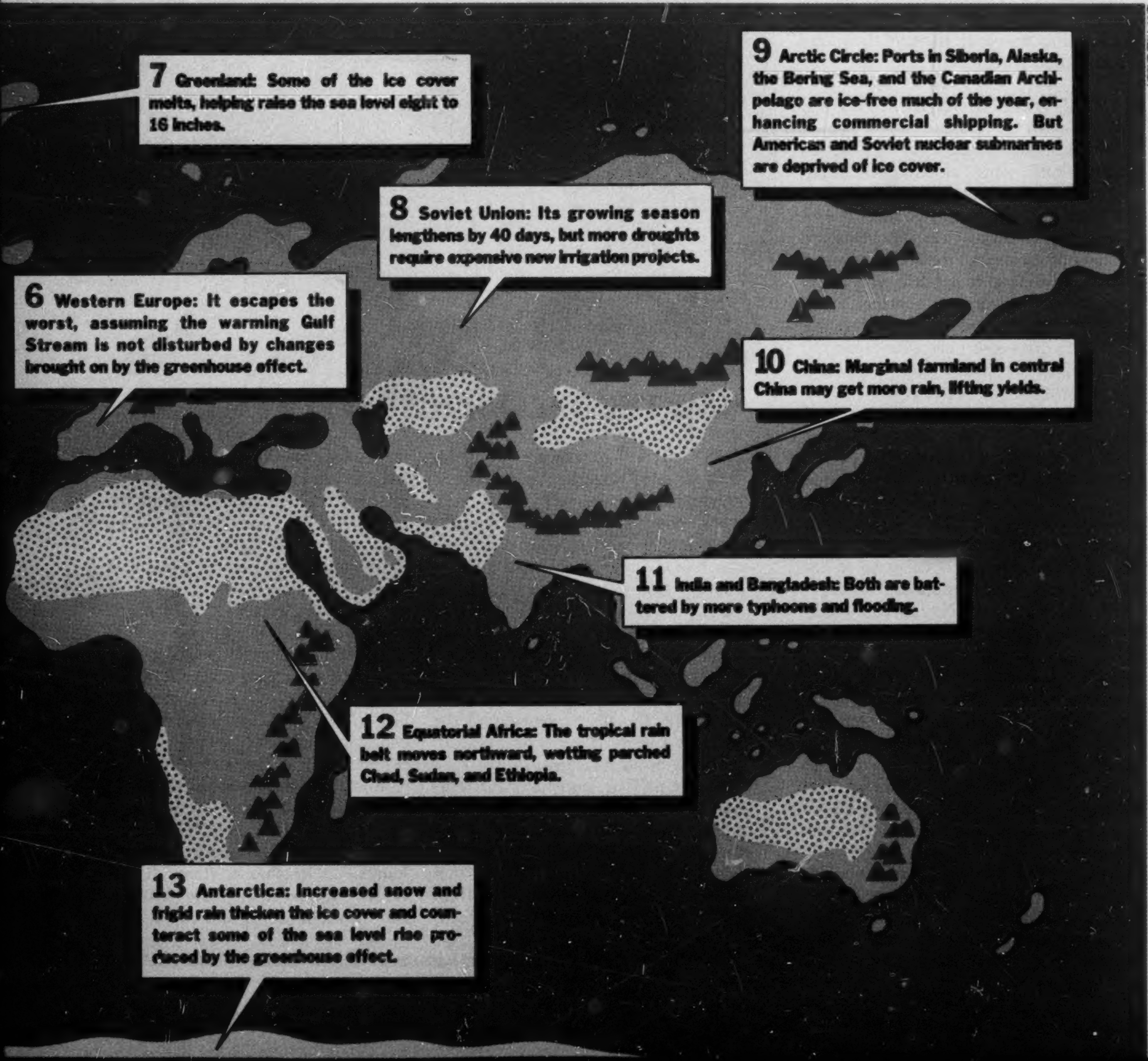
WHAT IT WILL MEAN

serious international cooperation to reduce CO_2 emissions unlikely.

Because no one understands all the variables that alter the earth's temperature, it's not absolutely certain that the greenhouse effect will arrive as predicted or that all its dire projected consequences will actually occur (see box, page 106). Some mitigating factors exist today, and others may emerge as the effect grows. For example, while clouds high in the atmosphere tend to trap heat, low-lying clouds tend to reflect sunlight. Clouds with a high moisture content have an even greater cooling effect.

Even so, the signs are ominous. Measured by the global mean temperature, last year was the warmest year on record; the 1980s are the warmest decade in a century. A rise in the earth's temperature of at least 2° or 3° Fahrenheit seems inevitable by the mid–21st century, when the concentration of CO_2 in the atmosphere is likely to be some 60% greater than today and double the level that prevailed before the Industrial Revolution. A temperature increase of more than 8° F. is possible.

Just a 2° warming could have dramatic effects. Since that 2° is only an average figure, much larger temperature increases could occur in certain places and seasons. For in-



7 Greenland: Some of the ice cover melts, helping raise the sea level eight to 16 inches.

9 Arctic Circle: Ports in Siberia, Alaska, the Bering Sea, and the Canadian Archipelago are ice-free much of the year, enhancing commercial shipping. But American and Soviet nuclear submarines are deprived of ice cover.

8 Soviet Union: Its growing season lengthens by 40 days, but more droughts require expensive new irrigation projects.

6 Western Europe: It escapes the worst, assuming the warming Gulf Stream is not disturbed by changes brought on by the greenhouse effect.

10 China: Marginal farmland in central China may get more rain, lifting yields.

11 India and Bangladesh: Both are battered by more typhoons and flooding.

12 Equatorial Africa: The tropical rain belt moves northward, wetting parched Chad, Sudan, and Ethiopia.

13 Antarctica: Increased snow and frigid rain thicken the ice cover and counteract some of the sea level rise produced by the greenhouse effect.

IAN WEZNAUCH

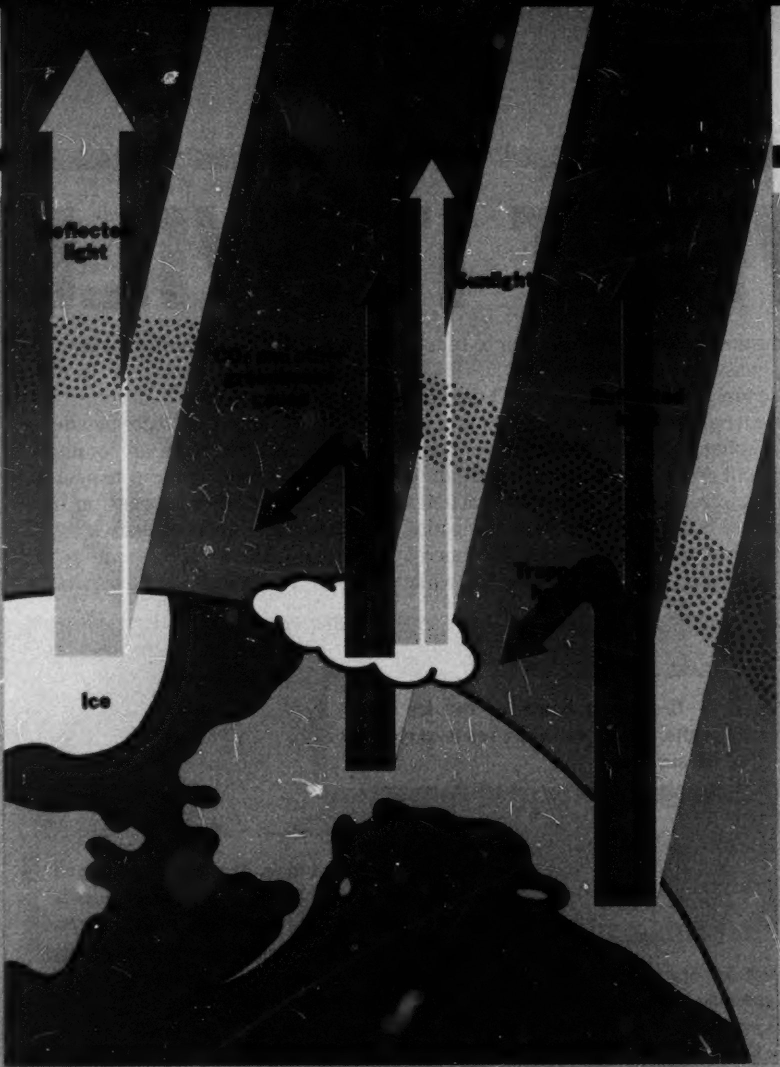
stance, one NCAR computer simulation projects a hot spot near the Bering Sea that could be nearly 30° warmer in winter than today. It took a worldwide cooling of only about 2°, perhaps due to a drop in solar radiation, to cause the Little Ice Age that wrought havoc in the 14th century. That was only a minor wobble compared with the long-term oscillations that occur over many millenniums. A seemingly small temperature shift means the difference between balmy spells and true ice ages. Civilization has developed in a narrow band of global climate, never more than 2° warmer or cooler, on average, than today's. A warming of 7° over the next 60 years or so would equal the entire rise in global temperature since the glaciers began their long retreat 18,000 years ago.

THE GREENHOUSE EFFECT will disturb the climate of the planet, changing such critical variables as rainfall, wind, cloud cover, ocean currents, and the extent of the polar icecaps. Although country-by-country consequences are far from clear, scientists are confident of the overall trends. Interiors of continents will tend to get drier and coasts wetter. Cold seasons will shorten, warm seasons lengthen. Increased evaporation will lead to drier soils over wide areas.

The ripple effects through the world economy will be enormous as shifts develop in soil conditions, crop yields, salinity of water supplies, and the availability of river water for generating hydroelectric power. Engineers will be hard put to it to anticipate future stresses on structures they build. "It may become difficult to find a site for a dam or an airport or a public transportation system or anything designed to last 30 to 40 years," says Jesse Ausubel, director of programs at the National Academy of Engineers. "What do you do when the past is no longer a guide to the future?"

Government officials and corporate executives are slowly becoming aware of the hazards of the greenhouse effect, but few are thinking of long-term strategies. Global warming was a minor item on the agenda of the Reagan-Gorbachev summit last December; the U.S. and the Soviet Union agreed to produce "a detailed study of the climate of the future."

Weyerhaeuser, the giant forest-products company in Tacoma, Washington, worries about its nearly two million acres in Oklahoma and Arkansas, where some climate scientists project a warming, drying trend.



HOW THE GREENHOUSE EFFECT WORKS

The earth grows warmer or colder mainly because of the effects of sunlight in the atmosphere. Clouds, snow, and ice reflect some sunlight back into space. But the earth absorbs much of it, converting it into infrared energy—heat. As heat rises from the earth's surface, it strikes molecules of carbon dioxide and other gases, setting them vibrating. The gas molecules reflect some of the heat back to earth, intensifying the warming effect. (For simplicity, the illustration shows the gases as a band in the atmosphere; in fact they occur throughout it.)

The more CO_2, the greater the heating. The earth's atmosphere contains substantially more CO_2 than it did before the Industrial Revolution. By analyzing cores from the ice sheets that cover Greenland and Antarctica, which enclose trapped bubbles of centuries-old atmospheric gases, scientists have concluded that in 1750 the atmosphere contained about 280 parts per million of CO_2. Today the figure is 344 ppm, nearly 25% higher.

If that trend accelerates, as most scientists now believe it will, at some point between 2030 and 2070 concentrations of CO_2 will rise to between 1.3 and 1.9 times the preindustrial level, or 367 to 531 ppm. In general, the stronger the world's economies, the more CO_2 gets spewed into the air. Scientists consider the near doubling of CO_2 more likely than the modest increase.

While CO_2 produces half the greenhouse effect, methane from such activities as growing rice and flaring natural gas wells accounts for 20% of it. Other sources: chlorofluorocarbons (CFCs) (15%); nitrous oxide, from fertilizers and microbes (10%); and ozone (5%).

ILLUSTRATIONS BY JEAN WISENBAUGH

The company is trying to breed drought resistance into the tree varieties it will plant there. British Petroleum, which has spent $11 billion on oil and gas operations in Alaska, has a particular interest in the greenhouse problem. Drilling rigs, housing, roads, and the Trans-Alaska Pipeline are all built on permafrost, which could start to thaw in a warming trend. BP has followed the scientific debate about the greenhouse effect, but at this point believes its investment is safe. The reason: BP's facilities rest on gravel pads that insulate the permafrost beneath them.

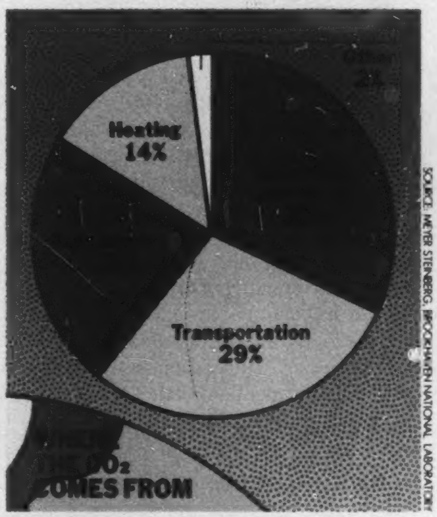
Both Alaska and Siberia have warmed up about 2.7° in just the past 20 years, according to researchers at the University of East Anglia in England. Says Michael Kelly, a climate researcher at the university and a consultant to BP: "We've now started to warn British Petroleum that 30 years out, greenhouse warming may have moved climate beyond the range of the conditions that have prevailed historically." BP is still studying the East Anglia warning.

WHAT FOLLOWS aren't hard and fast predictions of what will happen between the years 2030 and 2070, when carbon dioxide concentrations are expected to double from preindustrial levels. They are "plausible possibilities" suggested by computer models, as Howard Ferguson, assistant deputy minister of Canada's Atmospheric Environment Service, calls them.

Some of the most obvious effects will appear in agriculture. Through photosynthesis, plants make carbohydrates from CO_2 and water. As carbon dioxide concentrations increase, a plant's stomata, the pores through which gases and water vapor pass, need to open less to take in the same amount of CO_2, so the plant loses less water through evaporation. The upshot: The plant gets bigger.

If some crops grow faster, they could strip soil of nutrients more quickly, forcing farmers to buy more fertilizer. Food quality could deteriorate as CO_2 levels increase, because leaves may become richer in carbon and poorer in nitrogen. Insects feeding off plants stimulated by CO_2 would have to eat more to get their fill of nitrogen. Indeed, hungrier pests and damaging diseases might thrive on the greenhouse effect, forcing farmers to buy more pesticides as well.

The social and political consequences of the greenhouse effect are harder to assess. The Dust Bowl of the 1930s pushed millions of Midwesterners west to California; in the 1960s and 1970s, jobs and better weather pulled many millions from the Northeast to the Sunbelt. Says David Rind, a climate scientist with the Goddard Institute for Space Studies in New York City: "You may not get movements to the Southeast and Southwest anymore. It reaches 120° in Phoenix now. Will people still live there if it's 130°? 140°?" According to James Hansen of the Goddard Institute, the maximum temperature in Dallas could exceed 100° on something like 78 days a year; the current average is just 19.



SOURCE: MEYER STEINBERG, BROOKHAVEN NATIONAL LABORATORY

The U.S. accounts for about one-fifth of the world's CO_2 emissions, and 98% of these come from burning fossil fuels.

If American agriculture is battered by such punishing summer days, and Soviet agriculture thrives owing to a longer and more temperate growing season, what would that do to the balance of power? "The United States could become a grain importer and the U.S.S.R. could become a grain exporter," says Roberts of NCAR. "At the very least, it would be a major economic, political, and social dislocation."

One of the most discussed—and feared—consequences of the greenhouse effect is a projected rise in sea level, resulting largely from thermal expansion. Like any other liquid, water increases in volume when heated. But most scientists believe the rise will be relatively gentle, on the order of eight to 16 inches, making it a problem mainly for countries with large populations near or below sea level, such as the Netherlands and Bangladesh.

Geographically, the greenhouse effect is likely to have its greatest impact in the high latitudes of the Northern Hemisphere, the broad band from 60° north—roughly the latitude of Anchorage and Stockholm—to the North Pole. A feedback effect accentuates global warming in the higher latitudes. Snow and ice reflect sunlight into space, keeping temperatures from rising. But as the globe warms, the floating Arctic ice cover starts to melt, leaving less snow and ice to reflect sunlight—enhancing the warming, which in turn melts more snow and ice. (In the Southern Hemisphere, sea ice will also melt. But the land-based Antarctic icecap is so massive—it averages two miles thick—that it would take centuries to thaw.)

IF THE WORLD as a whole warms 3° by midcentury, the higher northern latitudes might become 8° or more warmer in winter. If the global average rises 8°, winter temperatures in the higher latitudes could go up a torrid 19°. "The fabled Northwest Passage would be open," says Walt Roberts of NCAR. "You could sail from Tokyo to Europe in half the time." Maybe so, but British Petroleum and others are beginning to worry about the hazards of pack ice—large, flat masses of ice that predominate in the Arctic Ocean—and icebergs, glacier chunks like the one that sank the *Titanic*, that float off the coasts of Newfoundland and Nova Scotia. The icebergs would endanger ships and floating oil rigs.

The Arctic ice cover could also cause problems for the U.S. and Soviet defense establishments. The polar icecap of the Arctic Sea helps both Soviet and American nuclear submarines avoid detection. The effect would be more damaging to the U.S.S.R. Because American submarines are faster and can travel farther than their Soviet counterparts, they are less dependent on hiding places under the icecap.

The Soviet Union would nevertheless appear to benefit substantially from the greenhouse effect. A warming of 8° could add as many as 40 days to the growing season in the U.S.S.R. But a world with twice as much CO_2 in the atmosphere also means a continental interior that is considerably drier; the Soviet Union would have to spend tens of billions on irrigation to take advantage of the longer growing season.

How would the U.S. be affected commercially? Global warming would have strange effects on the Great Lakes, the busiest waterway in the world. Using a computer model that projects an 8° winter

WHAT MAKES THE WEATHER SO HARD TO FORECAST

How do climate scientists know the greenhouse effect will bring about the woes that they predict? They don't know to a total certainty. What they *do* know is based on half a dozen high-powered computer simulation programs, called general circulation models, in North America and Europe. Researchers feed in equations based on the laws of physics, along with assumptions about clouds, sea ice, ocean currents, soil moisture, atmospheric convection, and emission of heat from the ground.

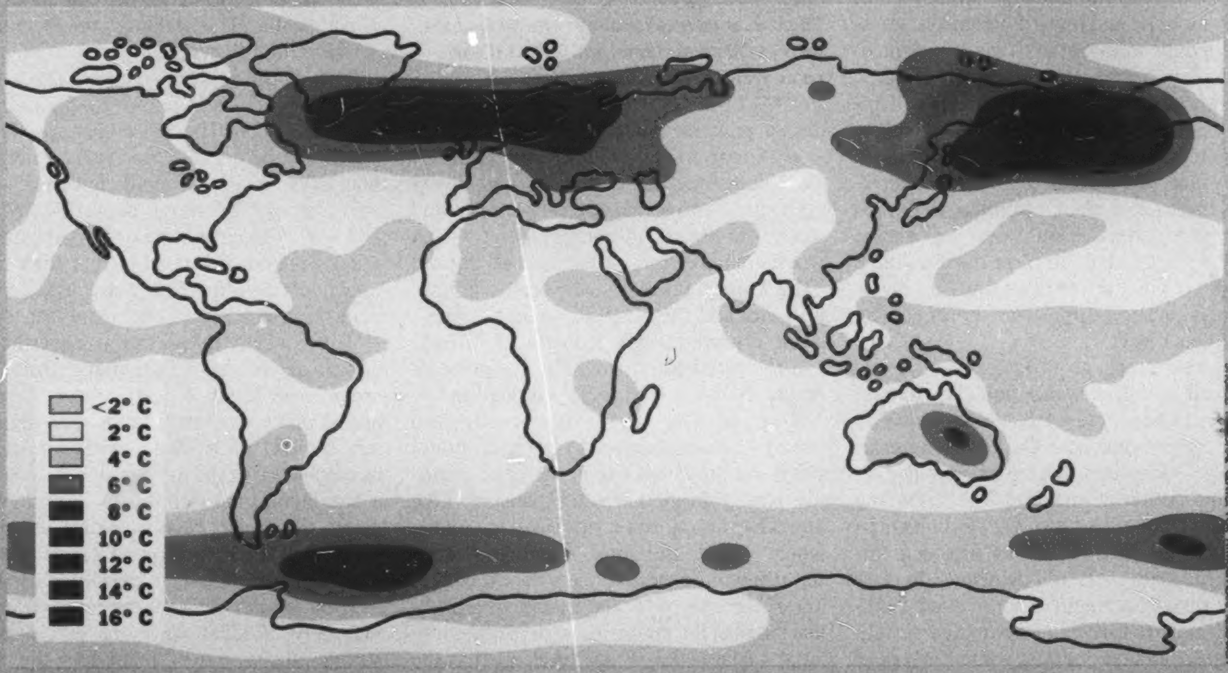
More complicated things happen in the heavens and on earth, however, than are dreamt of in the equations of scientists. Even using the best supercomputers, none of the models is so good that it can start with known weather conditions at a given point in the past and reproduce precisely what has happened since. To make the calculations manageable even by computers, most of the models suppose either that the oceans are a shallow, motionless swamp or that they don't exist at all. Despite that oversimplification, an especially sophisticated computer model at the National Center for Atmospheric Research (NCAR) in Boulder, Colorado, requires 1.5 trillion calculations to advance its predictions a single day.

One basic problem is called grid resolution. Climatologists divide the world into a grid. Most use a grid with squares the size of France. The grid defines France as a single set of numbers, failing to distinguish the cool, rainy north from the sunny, drier south. In his 1987 book *Chaos*, James Gleick, a New York *Times* reporter, imagined a world covered with a vast jungle gym of sensors spaced a foot apart and rising 35 miles to the top of the atmosphere. Each sensor measures with great precision temperature, pressure, humidity, and every other meteorological variable. An infinitely powerful computer processes all the data. This seemingly perfect monitoring system still could not predict exactly the weather next month in Atlanta.

The reason: The computer would not detect microfluctuations that took place in between the sensors. Errors multiply so quickly that within hours the reality of weather diverges from its predicted course. In effect, you can never have enough grid squares to forecast weather accurately. Tiny variations matter. The Butterfly Effect, known technically as "sensitive dependence on initial conditions," gets its name from the thought that a butterfly flapping its wings today in Nagasaki could conceivably influence storms next month in New York.

While most scientists agree that the greenhouse effect is coming, there aren't enough data yet to say with absolute conviction what its consequences will be. Certainties in science are a long time in the making. In a profession where tentative conclusions require decades' worth of data, one swallow does not make a summer. As recently as the 1970s some climatologists were worrying about global *cooling*, because world temperatures had peaked in the 1940s and then declined into the 1970s. Air pollutants such as volcanic and man-made dust may have blocked enough sunlight to lower global temperatures.

This computer model shows possible rises in winter temperatures, in Celsius, if CO_2 in the air doubles from the 18th-century level.



SOURCE: NATIONAL CENTER FOR ATMOSPHERIC RESEARCH warming, the Atmospheric Environment Service says the Great Lakes could be ice-free 11 months of the year, vs. 8.5 months today. That's the good news. The bad news is that the region will also be drier, so companies shipping such major cargoes as iron ore, grain, coal, and limestone will see costs rise 30% or so because lower water levels will mean that deep-draft freighters can no longer navigate the lock systems.

PERHAPS the biggest agricultural impact on the U.S. would be in the Midwest, where climate researchers predict a warming, drying trend. Staggering wheat crop losses deepened the Great Depression and prompted the biggest population migration in American history. When temperatures rise as little as 1.8° and precipitation drops 10%, Midwestern crops will suffer. Paul Waggoner, director of the Connecticut Agricultural Experiment Station in New Haven, sees a 2% to 5% cut in the yield of commercially desirable winter wheat.

Western Europe might escape the nastier consequences of global warming because its relatively small landmass is close to the sea and will not undergo the same degree of continental drying as the U.S., Canada, and the Soviet Union. What will happen to European temperatures is being debated. Most scientists think the Gulf Stream, flowing thousands of miles from the Caribbean, should continue to keep Western Europe from freezing to the consistency of Newfoundland, which is at the same latitude. But Wallace Broecker of Columbia University's Lamont-Doherty Geological Observatory in Palisades, New York, warns that the greenhouse effect could disturb the global circulation of the oceans in ways that cannot be predicted. Like a teakettle that doesn't boil the moment it's switched on, the earth's oceans, which range up to seven miles deep, take time to warm up. It could take 20 to 60 years before the oceans show the full effect of global warming.

Research on the effects of global warming in countries of the Third World and the Southern Hemisphere is sketchier. Africa may benefit, at least in rainfall. The rain belt across the equator would move northward, according to research about to be published by Syukuro Manabe, a climate modeler at Princeton's Geophysical Fluid Dynamics Laboratory. That's good news for the parched nations of the Sahel, including Chad, Sudan, and Ethiopia, which have suffered this century's deadliest droughts. Marginal farmland in central China may get more rainfall, increasing crop yields. India and especially Bangladesh, a third of which is only 20 feet above sea level, on average, would be battered by more storms and flooding.

"When climate changes," a United Nations Environment Program (UNEP) report bluntly declared last year, "society suffers." So what should we do?

In a sense, getting up in the morning adds to the greenhouse effect. Everyone contributes. If everyone is to blame, no one is to blame.

Clearly there are things we can't do. We can't scrub carbon dioxide out of industrial emissions the way we can pollutants like sulfur dioxide. So-called chemically alkaline absorbent systems that soak up CO_2 emissions add as much as 80% to the cost of producing electricity. The most efficient CO_2 scrubbers are trees. Like other plants they absorb CO_2, using it to make food and build wood. But trees are being felled around the world at a clip of 50 acres a minute, mostly in Brazil, West Africa, and Indonesia, according to UNEP. Reducing deforestation would help, but reforestation, proposed occasionally, isn't a practical answer. The Oak Ridge National Laboratory in Tennessee estimates that to stop the greenhouse effect cold would take 1.7 billion acres of sycamore trees, which are especially good at soaking up CO_2. That's an area roughly the size of Australia.

Changing the mix of fossil fuels can help. Natural gas produces half the CO_2 of coal and about two-thirds that of oil for the same amount of energy. While it's unlikely to happen, shifting completely to natural gas from coal or petroleum could extend by 20 to 30 years the time it takes for atmospheric CO_2 to double from preindustrial levels.

Some help should come from a 1987 treaty curbing production of chlorofluorocarbons. Released into the atmosphere, these synthetic chemicals, used in industrial solvents and refrigerants, eat away at the atmospheric ozone layer that protects people from dangerous solar radiation, which can cause skin cancer and cataracts. If the signatories comply, CFC production would be limited to 1986 levels beginning next year and gradually drop 50% by 1999.

Unfortunately, the CFC agreement is not a model for curtailing carbon dioxide. In that case a single industry was the source of the problem; there was someone to blame. Once persuaded by strong scientific evidence, the chemical industry agreed to institute production curbs. By contrast, no one controls the production of carbon dioxide. It is a result of everyday processes of life. In a sense, getting up in the morning adds to the greenhouse effect. Turning on the bathroom light uses electricity generated by fossil fuels; driving to work burns gasoline; even the building you work in may have added to the problem because making concrete gives off CO_2. Everyone contributes to the greenhouse effect. If everyone is to blame, no one is to blame.

Energy conservation would reduce carbon dioxide emissions at the source, but would be tough to enforce. Most alternative energy sources seem impractical, for the moment. Wind, geothermal, and solar energy have so far been casualties of low oil prices. So have synfuels, which have the added disadvantage of producing as much carbon dioxide as fossil fuels. Nuclear energy, despite well-deserved public concern about its safety, may deserve a second look because it produces no carbon dioxide.

ALL THESE strategies seek to buy time. Obviously it is better to adjust to the greenhouse effect over 200 years rather than 50. But an all-out international effort to reduce CO_2 emissions seems sure to hit two major snags. Countries that stand to benefit from global warming aren't likely to bring much enthusiasm to averting it. And those that stand to lose have trouble viewing this distant, somewhat speculative threat with the urgency required to call forth expensive and disruptive countermeasures.

If nations don't take action, Mick Kelly of the University of East Anglia suggests what businesses might do. "The winners from global warming," he says, "are going to be those people who think ahead of time and plan. The losers are going to be those who respond only when the crisis arrives, on the spur of the moment." For those who want to come out winners, now is not too soon to start thinking. F

■ 18-MONTH ECONOMIC FORECAST • TECHNOLOGY IN THE YEAR 2000 ■

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FORTUNE

AMERICA'S TOUGHEST MARKETING MAN

How Ross Johnson Crushes Competitors for Fun Profit

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RJR Nabisco's CEO flaunts his new "smokeless" cigarette.

JULY 18, 1988

FORTUNE

STAR
OPEN 24 HOURS

"You've got to know you can't bat a thousand, and you've got to have the stomach for it."
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CORPORATE PERFORMANCE
Cover Story

THE TOUGH COOKIE AT RJR NABISCO 32

In two mergers, Ross Johnson went through the revolving door last and came out first. An enemy of the quiet life, he reorganizes businesses constantly, reduces staff by the thousands, and shuffles executives like playing cards. Johnson's frenzy seeks a simplified management process with the single goal of pushing the company's powerful brands: Oreo cookies, Ritz crackers, Life Savers, and Winston cigarettes, among other blockbusters. His philosophy beat Procter & Gamble in the Great Cookie War and should boost earnings per share 20% annually through 1990. *by Bill Saporito*

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COVER: Harry Benson photographed CEO Ross Johnson at RJR Nabisco headquarters in Atlanta.

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Try spreading the wealth before you die, or use a creative tax scheme called a GRIT.

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"The role of the board is not to be a contender against management. Its role is to help management."

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"I always knew, even when I was at the bottom, that I could pick myself up and make it all back again."

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"If the economy strengthens, interest rates rise and stocks lose. If the economy weakens, earnings fall and stocks lose."

PAGE 85

"Sanctions and disinvestment worsen our position and set the clock back. They are madness!"

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"Forget the unexpected—the unexpected will just accelerate the progress. Believe me, we're having a revolution."

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"If I can give $4 million or $5 million to charity because I write a book, I may have that obligation to myself."

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Despite rising stock prices, a disturbing number of professional investors are ducking for cover these days. This is not a bull market struggling to regain its footing, they contend—but a big bad bear that will drag stocks down further and maul investor wealth yet again. Though they differ on the market's exact course in the months ahead, most of these pros agree that last October's slide was just the beginning. *by John J. Curran*

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America's anti-apartheid policy has backfired, hurting the people it was intended to help. Disinvestment and trade sanctions, instead of ending the abomination of apartheid, are inspiring the Pretoria government to roll back reforms. Worse, they are moving the white electorate still further to the right, raising the specter of a more racist and reactionary government. But what should replace the U.S. policy? The debate is heating up in Washington. *by Marshall Loeb*

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In the past dozen years the personal computer has transformed offices; videocassette recorders and compact discs have revolutionized home entertainment; and biotechnology has conferred genetically engineered vaccines and a host of other benefits on mankind. What further wonders lurking in the labs today will be commonplace when the next century begins? Exults one Silicon Valley executive: "We'll see a minimum of ten times as much progress in the next 12 years as we've seen in the past 12." *by Gene Bylinsky*

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EDITOR'S DESK

AFTER A YEAR or so of popular doomsaying, the new vogue among economists is optimism. They are finally recognizing what FORTUNE chief economist Todd May Jr. and his staff have predicted all along: Calamity Jane will not be visiting anytime soon. Beginning on page 48, May and his fellow prognosticators, notably economists Vivian Brownstein and Maureen Allyn, once again tell what to expect from the U.S. economy for the next 18 months.

To make our forecast of growth, unemployment, inflation, and profits, we use our own computerized economic model. FORTUNE is the only magazine to have one, and the results show why the investment has been worthwhile. "We never succumbed to the recession virus, even after the stock market crash," says May. He believes the economy will keep ticking along nicely, though inflation may become a problem by the end of next year.

Looking still further ahead, I commend to you Gene Bylinsky's dazzling preview of technology in the year 2000 (page 92). His picture of the coming revolution in computers, medicine, communications, and materials science will make armchair futurists impatient for the new century.

Equipped with our latest projections and a few tips from our Personal Investing department (on page 21), you might be able to parlay an embryonic investment into a nest egg. But people don't always make money. They lose it too, and sometimes they lose fortunes. Tales of legacies lost always have the power to fascinate. The wealthy among us want to know the pitfalls to avoid, and the rest wonder how folks who have it so good can lose it all so quickly. Associate editor Jaclyn Fierman, along with reporter Reed Abelson, set out to find the most instructive stories. They discovered fortunes abdicated and fortunes lost through incompetence, arrogance, or just plain bad luck (see page 74).

NINA BARNETT

Wealth watcher Jaclyn Fierman

Fierman didn't know it at the time, but she began her research for this story more than a decade ago in Italy. For two years she studied art history, including the lives of the Medici family, the epitome of Florentine wealth. To our enrichment, she abandoned her goal of a career in art restoration and turned to writing. After earning a master's degree in journalism from Columbia University and working for a number of newspapers and magazines, Fierman joined FORTUNE in 1982.

Her stories since then have often touched on the rewards and responsibilities of wealth. Two years ago she wrote about the marketing prowess of the winemaking Gallo family—and some difficulties they may have in passing the business on to the next generation. Last year she investigated what it takes to be rich in America. "The people who really make it and keep it don't live like millionaires," says Fierman. "They lead relatively humble lives. They don't even *know* the Joneses."

Marshall Loeb
MANAGING EDITOR

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TH 50 LEADING U.S. EXPORTERS

Led by General Motors and Ford, American exporters had a bumper year in 1987. The declining dollar helped spur a turnaround and shrink the deficit. ■ *by Edward C. Baig*

PUMPED UP by the declining dollar, the 50 biggest exporters in FORTUNE's annual directory are aiming some hard lefts at the U.S. trade deficit. At $142 billion, the deficit remains a formidable opponent—and will for some time to come. But the U.S. is starting to win a few rounds on points.

Consider: Exports by the top 50 rose 8% to nearly $80 billion in 1987. Total U.S. exports rose further still, climbing 11% to $253 billion—the largest one-year increase this decade. For the first time since 1981, the growth in exports kept pace with the growth in imports. Even more encouraging, exports continued to climb through the early months of 1988, reaching $29 billion in March, the highest monthly figure ever.

Why such a spurt of good news? Exporters are finally beginning to feel the effects of the declining dollar, which began its fall in 1985. "The weak dollar is leaving its mark," says Commerce Department economist Jeffery Lins. "It just took time for orders to get through and goods to get shipped." The hot exports last year—auto parts, electronic components, computers, chemicals, and other industrial products—accounted for $200 billion, about 80% of U.S. shipments abroad. But even farm products made a comeback; down for three years, they rose 10% to $29 billion.

General Motors leads FORTUNE's list for the sixth straight year, besting its crosstown rival and new runner-up, Ford Motor. GM's exports were $8.7 billion, a 4% improvement over 1986 but a bit short of its 1985 record of $8.9 billion. Ford bumped Boeing out of second place on a 5% rise to $7.6 billion. GM, Ford, and Chrysler (No. 8) don't engage in much long-distance trade; mostly they ship body parts, chassis, and other components to assembly plants in Canada. Last October, President Reagan and Canadian Prime Minister Brian Mulroney signed a trade agreement that, among other things, should keep in place duty-free auto exports between the two countries.

Three of the eight aerospace companies on the list took a nose dive. Boeing lost more than $1 billion in export sales and fell to third place, largely because it sold fewer 747s abroad. Lockheed, which dropped 14 places to No. 41—the biggest swoon on the list—delivered fewer C-130 Hercules transport planes and P-3 antisubmarine aircraft. Northrop, No. 32 last year, has been winding down sales of its F-5 fighter to Saudi Arabia and some 30 other countries, and dropped off the list entirely.

Four new companies joined the top 50, including Cummins Engine and Xerox. The other two are chemical companies that profited from both the lower dollar and higher commodity prices. Hoechst Celanese, formed when Celanese merged with American Hoechst in early 1987, appeared as No. 32 (by itself, Celanese was No. 35 last year). And Ethyl, which makes petroleum and specialty chemicals, was No. 49. Chemical shipments were so strong that two oil companies, Exxon and Amoco, attributed most of their export rise to demand for petrochemicals. Alas, the nation's pedal-to-the-floor demand for oil and gasoline caused energy imports to jump 18% to $46 billion.

On the rack: GM truck bumpers bound for Canada

Favorable prices and the cheap dollar also put paper producers on a roll. Exports rose 46% at International Paper and 24% at Weyerhaeuser. A construction boom in Japan helped account for more than $800 million of Weyerhaeuser's $1.2 billion in exports of wood products.

The lower dollar had perhaps its most dramatic effect on electronics and computer companies. All eight electronics firms on the list had higher exports, and the seven computer companies registered double-digit increases. Honeywell, which had the second-largest decline last year, had the second-biggest advance this time. Its 51% increase mainly reflects its acquisition of Sperry Aerospace at the end of 1986. The marriage between Burroughs and Sperry the same year accounts for the even larger gain—60%—at Unisys.

The export figures change from year to year, of course, but the cast of leading characters has remained fairly stable. Twenty-three companies on this year's list appeared on the first FORTUNE compilation in 1980. Another measure of stability: Prime Computer. Seeking to protect itself from an economic downturn in any one part of the world, the Massachusetts producer of computer-aided design and engineering equipment got almost half its sales from exports. For the third year in a row, that was the biggest proportion on the list. ■

PHOTOGRAPH BY MICHAEL L. ABRAMSON

RANK		COMPANY	PRODUCTS	EXPORT SALES		TOTAL SALES		EXPORTS AS PERCENT OF SALES	
1987	1986			$ Millions	Percent change 1986-87	$ Millions	Fortune 500 Rank	Percent	Rank
1	1	**GENERAL MOTORS** Detroit	Motor vehicles and parts	8,731.3	4.4	101,781.9	1	8.6	37
2	3	**FORD MOTOR** Dearborn, Mich.	Motor vehicles and parts	7,614.0	5.1	71,643.4	3	10.6	30
3	2	**BOEING** Seattle	Commercial and military aircraft	6,286.0	−14.2	15,355.0	20	40.9	2
4	4	**GENERAL ELECTRIC** Fairfield, Conn.	Aircraft engines, medical systems	4,825.0	11.0	39,315.0	6	12.3	23
5	5	**INT'L BUSINESS MACHINES** Armonk, N.Y.	Computers, related products	3,994.0	30.6	54,217.0	4	7.4	41
6	6	**E.I. DU PONT DE NEMOURS** Wilmington, Del.	Specialty chemicals, energy products	3,526.0	19.1	30,468.0	9	11.6	29
7	8	**MCDONNELL DOUGLAS** St. Louis	Aerospace and information systems	3,243.4	15.6	13,146.1	26	24.7	5
8	7	**CHRYSLER** Highland Park, Mich.	Motor vehicles and parts	3,052.3	8.6	26,257.7	10	11.6	26
9	10	**EASTMAN KODAK** Rochester, N.Y.	Photographic equipment and supplies	2,255.0	10.3	13,305.0	25	17.0	12
10	11	**CATERPILLAR** Peoria, Ill.	Heavy machinery, engines, turbines	2,190.0	8.6	8,180.0	48	26.8	4
11	9	**UNITED TECHNOLOGIES** Hartford	Jet engines, helicopters, cooling equip.	2,071.0	−2.6	17,170.2	15	12.1	25
12	14	**DIGITAL EQUIPMENT** Maynard, Mass.	Computers, related products	1,921.0	41.8	9,389.4	38	20.5	7
13	15	**PHILIP MORRIS** New York	Tobacco, beverages, food products	1,700.0	30.8	22,279.0	12	7.6	40
14	12	**HEWLETT-PACKARD** Palo Alto, Calif.	Computers, electronic equipment	1,596.0	13.6	8,090.0	49	19.7	8
15	13	**ALLIED-SIGNAL** Morristown, N.J.	Aircraft and vehicle parts, chemicals	1,416.0	4.3	11,597.0	28	12.2	24
16	16	**OCCIDENTAL PETROLEUM** Los Angeles	Agricultural products, coal	1,316.0	20.5	17,096.0	16	7.7	39
17	19	**MOTOROLA** Schaumburg, Ill.	Semiconductors, radio equipment	1,303.0	22.8	6,707.0	62	19.4	10
18	29	**UNISYS** Blue Bell, Pa.	Computers, related products	1,198.4	59.9	9,712.9	36	12.3	22
19	23	**WEYERHAEUSER** Tacoma	Wood, pulp, paper, logs, lumber	1,159.0	24.4	6,989.8	58	16.6	13
20	22	**GENERAL DYNAMICS** St. Louis	Tanks, aircraft, missiles, gun systems	1,156.9	15.3	9,344.0	39	12.4	21
21	28	**EXXON** New York	Petroleum, chemicals	1,129.0	46.4	76,416.0	2	1.5	50
22	18	**WESTINGHOUSE ELECTRIC** Pittsburgh	Generating equipment, defense systems	1,096.0	1.6	10,679.0	33	10.3	31
23	17	**UNION CARBIDE** Danbury, Conn.	Chemicals, plastics	1,064.0	−2.5	6,914.0	59	15.4	15
24	20	**RAYTHEON** Lexington, Mass.	Electronic defense systems, aircraft	1,047.0	−.9	7,659.4	53	13.7	19
25	21	**ARCHER DANIELS MIDLAND** Decatur, Ill.	Protein meals, vegetable oils, flour	981.7	−3.2	5,774.6	71	17.0	11
26	24	**DOW CHEMICAL** Midland, Mich.	Chemicals, plastics, polymer products	978.0	8.2	13,377.0	24	7.3	42
27	26	**TEXTRON** Providence	Aerospace and consumer products	891.0	13.4	5,661.4	72	15.7	14
28	25	**MONSANTO** St. Louis	Herbicides, chemicals, pharmaceuticals	887.0	1.6	7,639.0	55	11.6	28
29	36	**INTERNATIONAL PAPER** Purchase, N.Y.	Pulp, paper, wood products	777.0	45.8	7,763.0	52	10.0	32
30	31	**ITT** New York	Logs, cellulose pulp	719.0	14.1	8,551.0	45	8.4	38
31	33	**MINNESOTA MINING & MFG.** St. Paul	Industrial, electronic, and health prod.	673.0	12.5	9,429.0	37	7.1	44
32	•	**HOECHST CELANESE** Somerville, N.J.	Chemicals, plastics, fibers	672.0	N.A.	4,596.0	91	14.6	18
33	34	**FMC** Chicago	Defense equipment, chemicals	612.9	3.1	3,139.1	137	19.5	9
34	43	**HONEYWELL** Minneapolis	Control systems, flight systems	581.0	51.3	6,679.3	63	8.7	36
35	46	**INTEL** Santa Clara, Calif.	Microcomputer components and prod.	537.7	46.9	1,907.1	200	28.2	3
36	37	**ROCKWELL INTERNATIONAL** Pittsburgh	Electronic equipment, automotive parts	503.0	2.0	12,123.4	27	4.2	45
37	47	**MERCK** Rahway, N.J.	Drugs, specialty chemicals	492.0	35.2	5,061.3	80	9.7	33
37	39	**AMOCO** Chicago	Chemicals	492.0	15.8	20,174.0	14	2.4	49
39	30	**DRESSER INDUSTRIES** Dallas	Energy-related equipment	475.4	−26.8	3,119.7	138	15.2	17
40	41	**PRIME COMPUTER** Natick, Mass.	Computers, related products	464.0	14.2	960.9	334	48.3	1
41	27	**LOCKHEED** Calabasas, Calif.	Aircraft, electronic and info. systems	456.0	−41.8	11,370.0	30	4.0	46
42	42	**CONTROL DATA** Minneapolis	Computers, related products	445.6	14.4	3,366.5	123	13.2	20
43	•	**CUMMINS ENGINE** Columbus, Ind.	Diesel engines and parts	425.0	24.3	2,767.4	148	15.4	16
44	40	**PHILLIPS PETROLEUM** Bartlesville, Okla.	Liquefied natural gas, chemicals, plastics	424.0	2.2	10,721.0	32	4.0	47
45	50	**NCR** Dayton	Computers, related products	410.8	18.8	5,640.7	74	7.3	43
46	45	**ELI LILLY** Indianapolis	Drugs, medical equip., agricultural prod.	386.3	4.5	4,049.3	111	9.5	34
47	38	**DEERE** Moline, Ill.	Farm and industrial equipment	385.0	−20.4	4,134.5	108	9.3	35
48	48	**COMBUSTION ENGINEERING** Stamford, Conn.	Steam generators and power plants	383.7	7.3	3,301.0	128	11.6	27
49	•	**ETHYL** Richmond	Specialty and petroleum chemicals	367.8	16.4	1,720.3	212	21.4	6
50	•	**XEROX** Stamford, Conn.	Copiers, printers, computer workstations	358.0	8.5	10,320.0	34	3.5	48
		TOTALS		79,668.1		767,059.4			

LOOKING AHEAD

TECHNOLOGY IN THE YEAR 2000

Only a dozen years ago there were no PCs, no CDs, no VCRs, no genetically engineered vaccines. The next 12 years could bring ten times as much progress. ■ *by Gene Bylinsky*

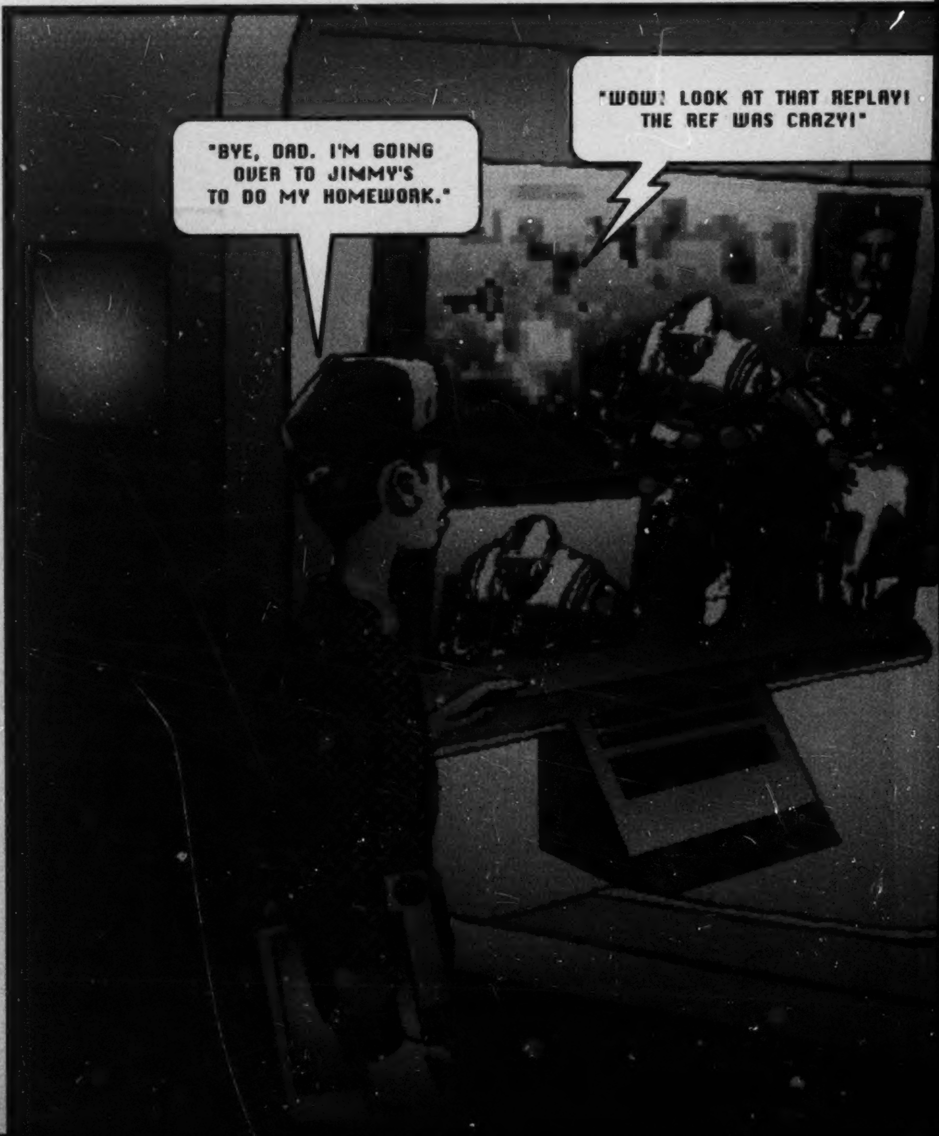
ALL IS VANITY, said the Preacher, and there is nothing new under the sun. Well, maybe there wasn't in the time of King Solomon, and anyway the author of Ecclesiastes was pondering the human condition, not man's evolution as toolmaker and healer. In these high-tech last days of the second millennium A.D., something new whizzes by practically every minute. In just the past dozen years the personal computer has transformed offices; videocassette recorders and compact discs have revolutionized home entertainment; and biotechnology has conferred genetically engineered vaccines and a host of other benefits on mankind. The next dozen years will bring the world to the year 2000. What further wonders are lurking in the labs today that will be commonplace when the next century begins?

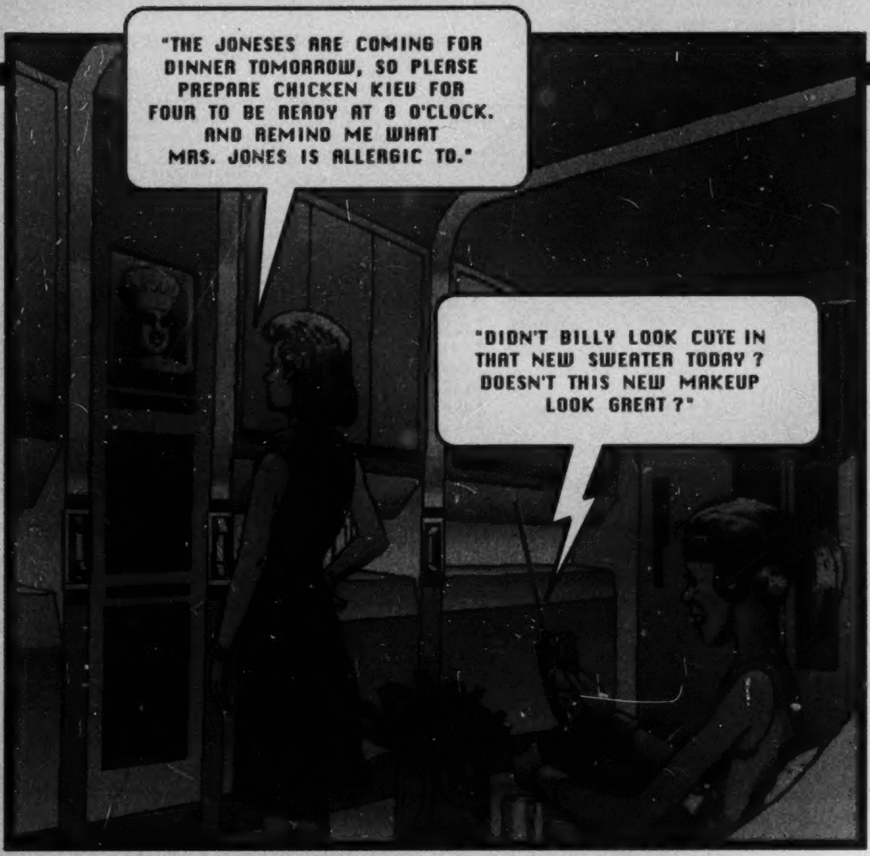
"We'll see a minimum of ten times as much progress in the next 12 years as we've seen in the past 12," exults John Peers, president of Novix Inc., a Silicon Valley company that recently put a computer language on a chip to give new zip to communications-signal processing. He adds, "I wouldn't want to be a science fiction writer today because reality is leaping ahead of fantasy." Quite soberly Peers and his peers on the high-tech frontiers say that by the year 2000:

- Computers that don't look and act like computers will surround you—shirt-pocket and notebooklike devices that respond to handwritten and spoken queries and commands, maybe even gestures.
- In corporate research centers, supercomputers 1,000 times more powerful than today's will calculate electron interactions in molecules in order to create materials that never existed before.
- When you travel, you may carry along an electronic book that opens up to display text on two facing screens. The book's memory will contain as many as 200 novels or nonfiction volumes; you just write the name of the one you want to read—and up it pops.
- Your doctor will check your heart by having you walk through a diagnostic machine rivaling Dr. McCoy's on *Star Trek*.

That's just a glimpse of the year 2000, when "we'll have capabilities no humans ever had," says Ralph E. Gomory, senior vice president for science and technology at IBM. Gomory, 59, adds, "When my father was young, he used to take a horse-drawn carriage to the railroad station. There were no automobiles, no telephones, no movies. No airplane had ever flown. There was no television, no atomic bomb, no man on the

REPORTER ASSOCIATE *Julianne Slovak*


"BYE, DAD. I'M GOING OVER TO JIMMY'S TO DO MY HOMEWORK."
"WOW! LOOK AT THAT REPLAY! THE REF WAS CRAZY!"


"THE JONESES ARE COMING FOR DINNER TOMORROW, SO PLEASE PREPARE CHICKEN KIEV FOR FOUR TO BE READY AT 8 O'CLOCK. AND REMIND ME WHAT MRS. JONES IS ALLERGIC TO."
"DIDN'T BILLY LOOK CUTE IN THAT NEW SWEATER TODAY? DOESN'T THIS NEW MAKEUP LOOK GREAT?"

The illustrations for this article were prepared on a personal computer using a version of Pixel Paint software that is not yet commercially available. The year 2000 could bring flat-screen TV with insets, book-size computers, electronic chefs that cook on command, and tiny picture phones.

moon. But by the time he died, he had flown in a jet and had seen all those other things happen. No generation had ever been through a transformation like that."

With all that has happened already, why are today's high-technologists so superconfident that the next 12 years will lead to a technological as well as a chronological millennium? What could possibly top all that has gone before?

The answer is that now, in contrast with earlier decades of invention, man stands at the dawn of the Age of Insight—a new era of understanding how things work and how to make them work better. In both electronics and biotechnology, the two principal fountainheads of new products, the immediate future holds not just the compilation of more and more data but also some startling new visions. In the view of many scientists, the computer is being transformed from a number cruncher into a machine for insight and discovery. It will become an instrument even more revolutionary than the microscope or the telescope. Unlike those fabulous and still evolving tools, the computer can look into the future. Supercomputers do it already by forecasting weather a few days ahead. As they leap forward in power, by the year 2000 they will be forecasting the structures of new materials and simulating such cosmic phenomena as the evolution of stars and galaxies.

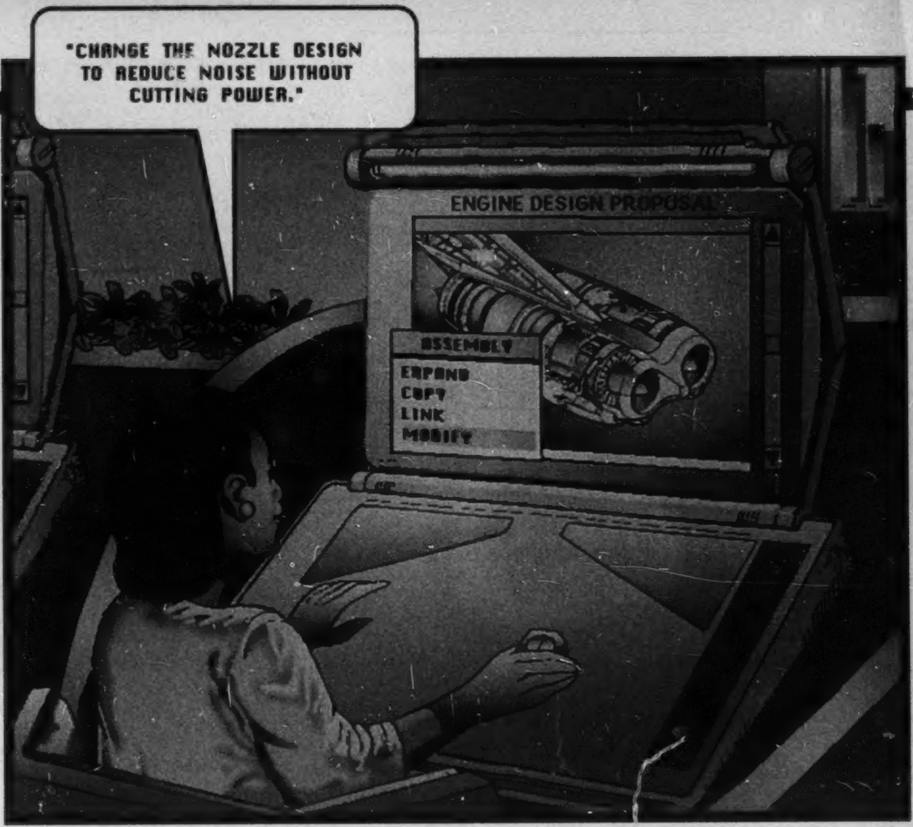
The new Age of Insight will also offer views of the workings of the human body never before attainable. Deciphering the interactions of the body's own healing substances and the underlying causes of disease will allow researchers to develop novel drugs and methods of treatment. They will increasingly tap the body itself as a new pharmacopeia, an almost inexhaustible trove of medications that genetic engineers can copy and improve on.

CONVERGING with these new insights and new computing power is the rapid emergence of telecommunications networks. It is as if—for a change—high-powered cars and sleek highways to accommodate them were arriving at the same time. Telecommunications experts see nothing less than a world linked by great computerized networks that process voice, data, and video with equal ease. The first ISDNs—integrated services digital networks—are just going into service in the U.S., Japan, and Western Europe. In a few years they are expected to yield billion-dollar annual savings to corporations in increased productivity and lowered communications costs.

The certainty of these advances makes the experts drool. "I've never been as excited about the future and about the speed with which we're making progress," says Gordon Bell, vice president for research and development at Ardent Computer of Sunnyvale, California, a maker of supercomputers. Bell is one of the world's top computer designers and visionaries: He led the development of Digital Equipment's landmark VAX computer systems. Now he is pioneering the new insight and discovery machines.

Most of the underlying technologies for products that will be on the market by the year 2000 are already in the labs or just entering them. Walter Utz, Hewlett-Packard's manager of advanced engineering, notes that it takes about 12 years to translate a new technology into useful products. Since the turn of the century is only 12 years

ILLUSTRATIONS BY PEPE MORENO, PHOTOGRAPHS BY WILLIAM LOMBARDO


"CHANGE THE NOZZLE DESIGN TO REDUCE NOISE WITHOUT CUTTING POWER."
ENGINE DESIGN PROPOSAL
ASSEMBLY
EXPAND
COPY
LINK
MODIFY

To spoken commands, a computer reconfigures a jet-engine housing and submits it to tests.

away, many of the directions have already been set.

This article is based on an assessment of the future as a framework of the possible—as helicopter pioneer Igor Sikorsky once described it—by some 100 experts in industry, universities, federal agencies, and venture capital firms in the U.S., Western Europe, and Japan. Forty of these experts make up FORTUNE's Probability Panels, offering their predictions about the likelihood of specific innovations as shown in the accompanying tables. Surprises are bound to emerge along the way that may throw some of the predictions off track: Witness the recent surge in high-temperature superconducting materials. But, says IBM's Gomory, "forget the unexpected—the unexpected will just accelerate the progress. Believe me, we're having a revolution *without* superconductivity or anything like that."

A tour of what's coming by 2000:

THE EXPERTS AGREE that progress in both consumer electronics and computers will continue to be led by advances in semiconductor chips. These advances have been nothing short of spectacular, and they will continue to be so. Just 18 years ago Intel Corp. pioneered a 1,024-bit, or one-kilobit, DRAM (dynamic random access memory) chip, which held about 4,000 transistors and related components. Today, four-*megabit*—four-million-bit—DRAMs with about 16 million components are already in use.

"A one-billion-transistor chip by the year 2000 is not inconceivable," says Robert N. Noyce, vice chairman of Intel and co-inventor of the silicon chip. He thinks that a hundredfold, perhaps even a thousandfold, improvement is still possible with conventional technology, including so-called wafer-scale integration—building hundreds of different chips into a single system. Greater chip density makes chips cheaper and computers smaller and more reliable.

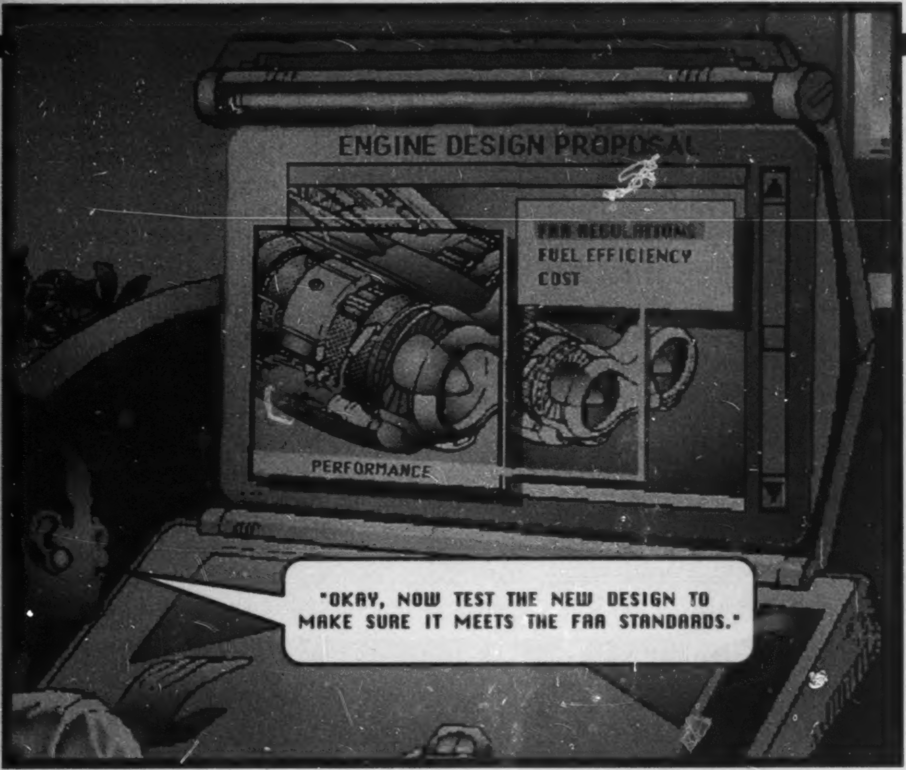
Along the way a new kind of information storage and processing technology may possibly emerge. One intriguing candidate: an optical liquid-crystal medium that would allow information to be stored in three dimensions, instead of the two dimensions of today's chips. This would permit the equivalent of thousands of memory chips to be jammed into a device the size of a coffee cup, says Caltech chip designer John Hopfield.

It's already clear that the galloping extension of today's technology will give computers of the year 2000 an electronic punch that will startle today's users. Desktop workstations will pack the power of what we now know as supercomputers. Supercomputers themselves will soar into the numerical stratosphere—as will their cost. Supercomputers of the future are expected to do at least four trillion complex calculations a second—1,000 times more than today. The biggest may cost as much as $1 billion, but that will represent a vast improvement in computing bang for the buck. A whole corporation might be built around a single supercomputing system.

One big challenge: devising appropriate software to run these supercomputers, which will likely consist of hundreds or even thousands of individual computers running in parallel. If that type of programming can be mastered, and most experts believe it will be, supercomputers will emerge as great vision- and intellect-extending engines by the year 2000. Kenneth G. Wilson, a Cornell University Nobel Prize winner in physics and an expert on supercomputing, predicts that the machines "will open vast new domains of scientific research—domains that are inaccessible to traditional experimental or theoretical modes of investigation." Supercomputers, he explains, will enable scientists to "see" objects on a smaller scale than microscopes can—a vital contribution to chemistry, chemical engineering, molecular biology, and other fields. Supercomputers could also describe lightning-fast events, such as the chemistry involved in photosynthesis, in greater detail than today's instruments permit.

The supercomputer of the year 2000 will emerge as an indispensable industrial tool, because its enormous capacity will make possible mathematical modeling of complex phenomena that are influenced by huge numbers of variables. Among other things, it is likely to serve by then as a full-fledged electronic wind tunnel. Where today only portions of airplanes can be tested in computers, complete airframes will be "flown" inside supercomputers at supersonic and hypersonic speeds. Better cars will be designed in computers because an engineer will be able to "feel" how a car handles before it is built. On the screen the designer could repeatedly crash his computer-model car into barriers or other cars to see how well it withstands the damage.

The design of new materials should benefit spectacularly from the new supercomputer power. "Scientists have so far explored only an infinitesimal fraction of possible forms of matter," says Wilson. Since the properties and structure of molecules are ultimately determined by the interactions of the electrons within them,


ENGINE DESIGN PROPOSAL
FAA REGULATIONS
FUEL EFFICIENCY
COST
PERFORMANCE
"OKAY, NOW TEST THE NEW DESIGN TO MAKE SURE IT MEETS THE FAA STANDARDS."

In this Apple Computer concept, a design could be proved out without building a prototype.

Wilson says, sufficiently powerful supercomputers should theoretically be able to "predict everything about a material with no experimental information whatsoever" by calculating those interactions. He adds, "The potential importance for both basic research and industry applications is beyond anything one can imagine today, if reliability could be achieved."

The discovery capabilities of computers of all sizes will be enhanced by the great leap in computing power by the year 2000. The reason: the advent of what scientists have begun to call "visual computing," which in effect reproduces reality mathematically within a computer so that objects can be both seen and manipulated in all sorts of ways. The nature and behavior of an object or phenomenon can be described in equations and presented visually; the objects simulated can include anything from the steering mechanism of a car to the interior of a star. This kind of computing will open up new areas to scientific inquiry and bring products to market at unheard-of speeds by allowing the rapid testing of almost infinite product variations.

Visual computing makes seeing become believing. It gives engineers and scientists a new window into complex realities. As Donald P. Greenberg, director of the computer graphics program at Cornell, explains it: "I don't care whether we're traveling down the bloodstream and inside the heart, or looking at a building shaking in a simulated earthquake, or at an interior design of a house, or at a demographic projection with six variables. I just want to see what's happening so that if my model does not yield the results I anticipated, or if the interrelationships between the variables are incorrect, I can go back and change the simulation."

Another great benefit of soaring computing power will be the arrival of the truly "user friendly" computer. A great gap still separates man and machine. Despite their computational brilliance, which dwarfs man's, machines have horrendous difficulty with speech recognition because people speak in unstructured and inconsistent ways. Computers have comparable problems identifying visual patterns and recognizing objects from varying angles.

To the rescue, by the year 2000, may come neural circuits, simplified analogs of much more complex human auditory and visual nerves and related structures. One of those unpredictable twists in the high-tech road to the future may be a $2,000 board for PCs that will allow them to understand several hundred words of continuous speech. The board, which Digitech Inc., a small Missouri company, says it will deliver by the end of this year, uses chips that try to imitate some of the ear's sound-processing functions. Similar work is in progress in vision. Caltech's noted microchip designer Carver Mead, for instance, has already built a chip that imitates some of the eye's information processing.

By putting some of these ideas into practice, says Jean-Louis Gassée, Apple Computer's senior vice president for research and development, "by the year 2000 computers will seem magic to my wife, who really doesn't like computers." The day may well have come when machines respond readily to spoken commands—and even answer back, just as the strong-willed HAL-9000 computer did in the 20-year-old film *2001: A Space Odyssey.*

BY THE YEAR 2000 most computers will have lost their familiar boxy shapes. The idea is to make them more compatible with people by making them look less like machines. Says Gomory: "One way to make computers easy to use is to pretend there is no computer. Instead, you reproduce on the screen whatever you're used to. If you want to write a letter, you reproduce a piece of paper on the screen and you write on it. The computer translates your handwriting into type. If you want to file the letter, a

A FORTUNE PROBABILITY PANEL

COMPUTERS

Ten experts in industry, universities, and government agencies rate on a scale of 1 to 10 the likelihood that each item listed will be available by the year 2000.

	TEN EXPERTS										CONSENSUS
Computers that recognize handwriting	7	9	9	8	8	9	9	4	9	7	7.9
Instant access to all available information on a subject	9	9	7	8	10	8	3	9	4	4	7.1
Voice-controlled computers	5	3	1	3	10	9	9	10	8	9	6.7
Gesture-controlled computers	3	8	8	6	10	1	9	10	7	3	6.5
Flat desktop computers	8	6	2	5	10	5	9	7	5	5	6.2

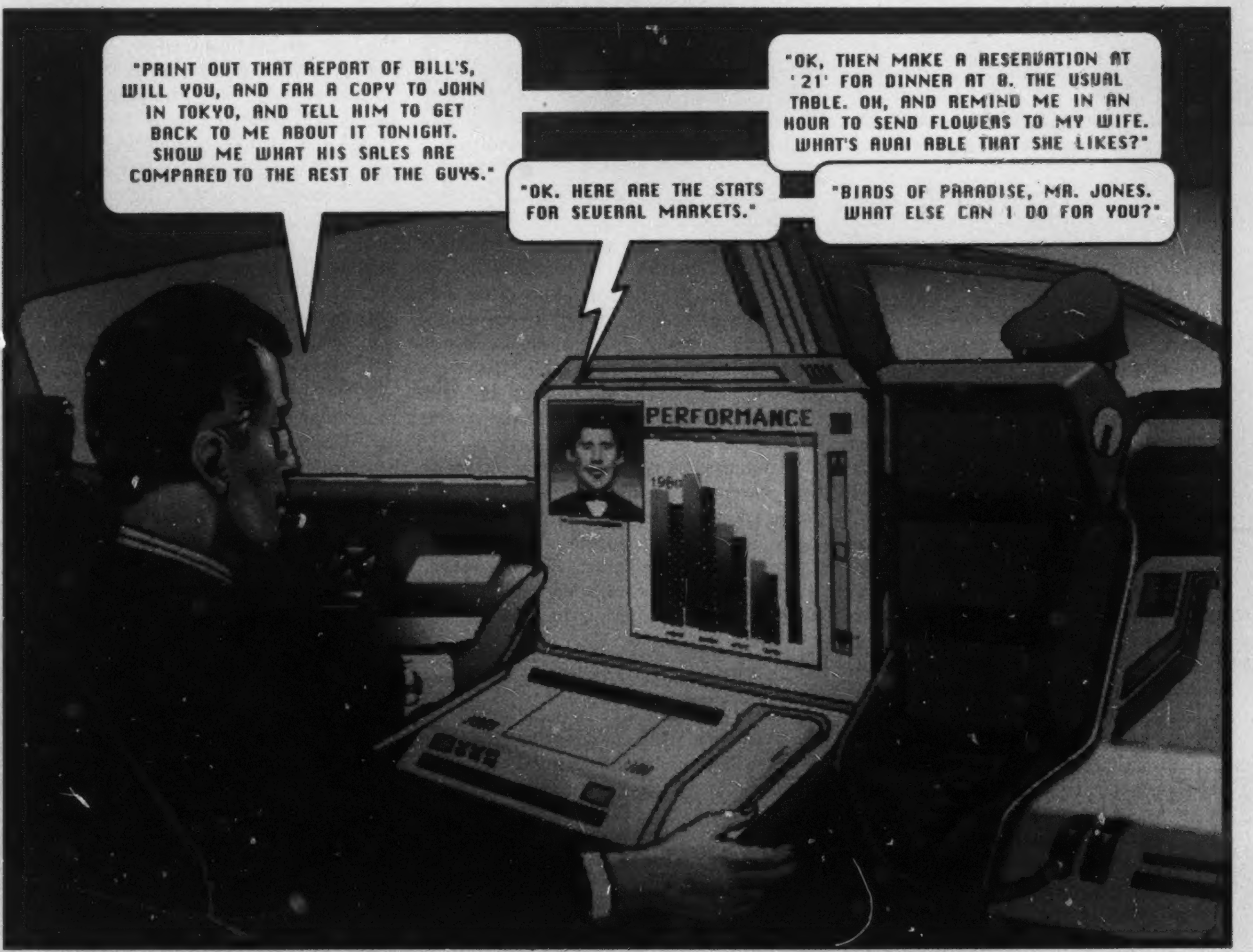
picture of a filing cabinet appears and you stick the letter in."

Handwriting as a means of entering data into computers, in fact, tops the list of many experts' predictions. They feel it is a more natural way to interact with computers than using keyboards, even though some people can type faster than they write and others have messy handwriting. The writing would be done on thin flat screens placed on desks, much like blotters.

Companies are hard at work on putting these concepts into practice. IBM, for one, is developing components of an electronic book that would contain the text and illustrations from hundreds of volumes on a small diskette, with an easy-to-read liquid-crystal screen instead of pages. "We could even give it to you in a leather binding, if you prefer," says Gomory. In addition, it could be used as a computerized workbook, a small machine for word processing and other applications that a traveler could carry along and communicate with in longhand instead of using a keyboard or a mouse. Texas Instruments is also exploring the idea.

MITCHELL KAPOR designed the Lotus 1-2-3 spreadsheet programs and is now chairman of On Technology Inc., a Cambridge, Massachusetts, software company. He sees almost all PCs assuming the shape of hard-cover books in the year 2000. He predicts the appearance of a computer-based reference book, a cross between a dictionary and an encyclopedia, that answers questions about people, places, and events. Gassée of Apple envisions computers of many sizes—from a 3-by-5-inch card to a blackboard tapped into a database. Noyce of Intel expects to see a personalized electronic file by the year 2000. He describes this device as "a filing system that will read and recall every piece of information that comes across my desk, or that I deal with in my daily activity." The device, furthermore, would have "instant communication with every other computer." The function of computers will also change dramatically. They will, in essence, become instruments of access to a network over which desired information flows rapidly on demand.

Telecommunications are converging with computers at an opportune time. Just as computational capabilities are beginning to soar, the telecommunications industry is rapidly switching from analog to digital


"PRINT OUT THAT REPORT OF BILL'S, WILL YOU, AND FAX A COPY TO JOHN IN TOKYO, AND TELL HIM TO GET BACK TO ME ABOUT IT TONIGHT. SHOW ME WHAT HIS SALES ARE COMPARED TO THE REST OF THE GUYS."
"OK. HERE ARE THE STATS FOR SEVERAL MARKETS."
"OK, THEN MAKE A RESERVATION AT '21' FOR DINNER AT 8. THE USUAL TABLE. OH, AND REMIND ME IN AN HOUR TO SEND FLOWERS TO MY WIFE. WHAT'S AVAILABLE THAT SHE LIKES?"
"BIRDS OF PARADISE, MR. JONES. WHAT ELSE CAN I DO FOR YOU?"
PERFORMANCE

An executive uses Apple's projected Knowledge Navigator, combining an interactive talking computer with advanced telecommunications.

A FORTUNE PROBABILITY PANEL

TELECOMMUNICATIONS

The experts give all these possible products a good chance to be on the market in 12 years except the instantaneous-translation telephone, a Japanese dream machine.

	TEN EXPERTS										CONSENSUS
Voice-controlled telephones	5	8	8	10	7	8	9	10	5	8	7.8
Color fax	8	8	4	10	7	6	6	10	10	8	7.7
Combined telephone/computer/TV	9	5	8	4	8	7	8	8	2	9	6.8
Picture phones	3	4	6	7	5	6	9	10	8	8	6.6
Instantaneous-translation telephones	4	4	5	3	3	3	3	5	1	6	3.7

transmission of signals—the "bit" language of computers. Furthermore, the industry is greatly enhancing the transmission capacity of existing telephone lines to allow simultaneous transmission of voice, data, and video. A few years further in the future is wide use of capacious fiber-optic cables in business and at home. Gassée calls such a cable "a data hydrant."

The telephone of the year 2000 will evolve into what Bell Labs' vice president for research, Arno A. Penzias, refers to as "an integrated information appliance." This would be a sleek device with a large flat screen that would allow picture-phone conferences in full color as well as offer all the other accouterments of the information age: the ability to send and receive documents and messages, act as a full-size computer, and provide access to many information sources.

ROLAND C. MORENO, president of Paris-based Innovatron and inventor of a "smart" credit-and-charge card equipped with a chip, sees counterparts of the French Minitel system in wide use in other countries by the turn of the century. (West Germany's Bundespost, the federal postal service, is now expanding its version of the system.) Minitel replaces telephone books with a small computer terminal. Besides finding addresses, it can buy theater, plane, and train tickets, send bouquets of flowers with notes translated if need be—albeit clumsily—and find girlfriends or boyfriends, the machine's most popular service. Minitel is now in use in nearly four million French households and offices as a government-subsidized experiment.

Japan's entry in the future-telephone derby is likely to be an instantaneous translation telephone that will work at least in English and Japanese, for openers. NEC, the Japanese electronics giant, began research on the project in 1983. Akihiro Kitamura, a NEC vice president, says it will take at minimum another five to ten years to complete the device—assuming the problem of recognizing continuous speech will have been mastered by then.

The Age of Insight is also revolutionizing both medical diagnosis and treatment by making them far quicker and more specific. An imposing array of new tests and instrumentation—from antibodies that seek out harmful viruses and bacteria to vastly improved body-scanning technologies—are opening the interior of the body to a new view. All this should allow doctors to diagnose infections in minutes instead of days and heart attacks in seconds instead of hours. They should also be able to detect tumors before symptoms appear, permitting treatment to begin earlier and drastically improving the chance of success.

New insights into human diseases would spur the creation of elegant new treatments. For instance, Leroy Hood, a brilliant Caltech immunologist, says that by the year 2000 it should be essentially possible to prevent such autoimmune diseases as rheumatoid arthritis, multiple sclerosis, and insulin-dependent diabetes, in which the body mistakenly attacks its own tissue. Clones of immune system cells gone haywire do the damage. Hood and his associates are already designing ways to remove such undesirable cell families in mice.

One of the experts' most startling predictions is that by the year 2000 it should be possible to regrow whole organs, or parts of them, in the body instead of replacing them with transplants. This could come about in at least two ways. First, scientists could decipher the remarkable biological program that leads to the growth of a new heart in an embryo, for example. Second, they could repair sections of a heart that had been damaged by a heart attack, say, by administering such tissue-restoring substances as the fibroblast growth factor that the body makes to regenerate blood vessels. California Biotechnology Inc., of Mountain View, the first company to clone the factor, has shown that it significantly accelerates the healing of wounds in animals; tests on people start next year. The growth factor also appears to repair nerve cells such as those destroyed in the brains of Alzheimer's victims.

BY EXTRACTING such healing substances from the human body and duplicating them through genetic engineering, scientists are cashing in on—and enhancing—the body's remarkable ability to heal itself. Genetic engineers have hit a potential bonanza: The body makes about 100,000 proteins. Says David Botstein, vice president for science at Genentech, the biggest U.S. biotech company: "Suppose 1% of them have the potential of being turned into pharmaceuticals. That's 1,000 new drugs." Other drugs of the year 2000 should include inexpensive and highly specific molecules tailored to fit receptors for hormones, peptides, and other substances that regulate physiological events in the body from hunger to the sex drive. These precisely targeted drugs will replace chemicals discovered by the historical trial-and-error method. Genetically engineered vaccines, such as the recently introduced hepatitis killer, could eradicate many infectious diseases, including malaria.

This century's crowning achievement in biology could well turn out to be the deciphering of the human genome—the deter-

A FORTUNE PROBABILITY PANEL

BIOTECHNOLOGY & MEDICINE

The medical experts give an AIDS vaccine by the year 2000 less than an even chance, but quicker diagnosis and better treatment should limit damage from heart attacks.

	TEN EXPERTS										CONSENSUS
Defeat of heart disease	7	10	6	7	8	0	4	3	6	2	5.3
Defeat of AIDS virus	5	2	3	5	8	10	1	5	7	2	4.8
Defeat of rheumatoid arthritis and multiple sclerosis	8	5	5	5	2	6	5	0	6	3	4.5
Defeat of leukemia and lung cancer	6	5	5	5	4	2	3	0	2	1	3.3
Defeat of Alzheimer's and Parkinson's	3	2	4	1	1	2	0	2	0	0	1.5

A FORTUNE PROBABILITY PANEL

SUPERCONDUCTIVITY

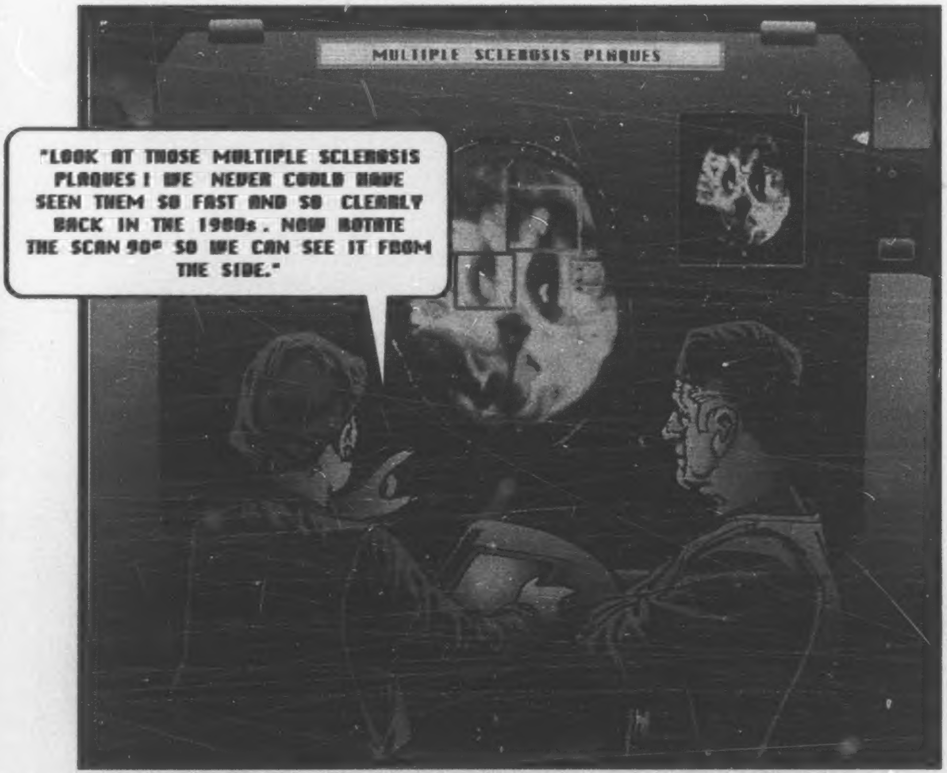
These experts think the technology is likely to improve magnets and motors, but doubt that such things as magnetically levitating trains will soon be a commercial reality.

	TEN EXPERTS										CONSENSUS
Magnets	5	7	8	4	7	7	7	6	1	7	5.9
Motors and generators	5	7	7	6	7	7	8	5	0	5	5.7
Energy storage	4	7	4	4	8	4	4	5	0	5	4.5
Power transmission	4	2	4	5	2	4	5	4	0	5	3.5
Levitating transportation	4	2	6	2	1	2	2	2	0	2	2.3

mination of the order, content, and location of the genes on the human chromosomes that control the body's growth and well-being. Broken down to the most basic chemical level, says Hood of Caltech, those instructions would fill 500 volumes, each 1,000 pages long, each page containing 1,000 words, each word consisting of six letters of the DNA language. The mapping of the genome would open broad new avenues of medical diagnosis and treatment. In basic biology, comparative analysis of the genomes of mice, fruit flies, and people would allow scientists to break the other two still undeciphered DNA codes—one that dictates steps in cell differentiation and development, another that governs the structure of chromosomes.

CRACKING the remaining codes, Hood suggests, would raise the spectacular possibility of creating entirely new types of biostructures for medical and industrial uses. A molecule might be designed, for instance, that would connect with cancerous cells and make them revert to normal. Deciphering the genome would also allow doctors to prepare a genetic printout of a baby at birth to spot susceptibility to various diseases and to start early treatment.

Surprisingly, FORTUNE's Probability Panel doubts that the most talked-about recent scientific breakthrough—superconductivity—will contribute much by the year 2000. The phenomenon greatly speeds the flow of electrons by cooling the conductors they pass through—to the point where they lose resistance. But Ian Ross, president of Bell Labs, says that while superconductivity is of great interest in instrumentation, working at extremely low temperatures in computing and signal switching is "too irksome." Chairman Gordon Moore of Intel adds that he is always suspicious of new technologies "where everybody seems to be excited about it for somebody else's application. You know, 'My view is that it doesn't impact the kinds of things we do much but the power generation people will find it great.' "


MULTIPLE SCLEROSIS PLAQUES
"LOOK AT THOSE MULTIPLE SCLEROSIS PLAQUES! WE NEVER COULD HAVE SEEN THEM SO FAST AND SO CLEARLY BACK IN THE 1980s. NOW ROTATE THE SCAN 90° SO WE CAN SEE IT FROM THE SIDE."

Vastly improved body-scanning techniques will aid both diagnostic and surgical accuracy.

AT IBM, Gomory draws a sharp distinction between new superconducting materials as scientific discoveries and their possible technological applications. He says, "A door has been opened into the unknown and we don't know what's on the other side. We're in a whole new world of materials. History has shown us that over time that tends to amount to something." But he guesses that most of those breathless forecasts about superconductivity powering 300-mile-per-hour trains and carrying electricity cheaply over long distances probably won't come true.

The impact of new technology on everyday work and life in the year 2000 will be more subtle than the dramatic transformations wrought in the lifetime of Gomory's father by automobiles, airplanes, movies, antibiotics, television, spaceflight, and other marvels. Some of the changes computers will bring about will be more intellectual in content, while in biotechnology the great advances in diagnostics and treatment will be readily apparent. Says George H. Heilmeier, chief technical officer at Texas Instruments: "In the medical field alone, the ability to bring the best medical care in the world to any local hospital will represent as big a jump as going from the horse-drawn cart to the automobile."

There are limits, of course. None of the technological possibilities that scientists and engineers are pursuing today suggest that man will soon decipher such fundamental mysteries as the workings of the human mind or the fate of the universe. Ecclesiastes also declared, "No man can find out the work that God maketh from the beginning to the end." The Preacher may not have been right about new things under the sun, but on this one he hasn't been proved wrong—yet. F al freedom, leaving a legacy that all work is God's work. How profoundly our culture used to be influenced by that credo.

YVONNE DODD
Dallas

Myron Magnet dares question values from the Sixties that many of us thought were "in." Yet the "cultural revolution" of the Sixties was merely another wave of a trend that began with the French Revolution: the breakdown of loyalty and discipline in the West.

SIEGFRIED P. DURAY-BITO
Chief Financial Officer
Schneider Securities
Denver

I read the essay twice. It is a brilliant analysis and should be required reading of every high school and college student in the country. Perhaps more important, it should be required reading of all the teachers in those institutions. There is no substitute for values.

RICHARD A. YOUNG
Martin Clearwater & Bell
New York City

BURNING OUT IN THE OIL FIELD

"Cool Cures for Burnout" (June 20) hit the nail square on the head. I'm a front-line manager for an oil-field services firm, and burnout is a major problem in our business—although it is usually called a bad attitude. We are an industry slowly bleeding to death, but unlike IBM, we don't have the resources to stop the flow.

AUBREY MERKEL
Bryan, Texas

THE TRADE PUZZLE

I am amazed by the debate over why the U.S. trade deficit is slow to decrease despite the dollar's drop against foreign currencies ("The New Export Entrepreneurs," June 6). Foreign companies might be applying this principle: Never lose a customer. Some companies might not be able to keep it up, but those that do—and I believe it will be the majority—will turn out to be the toughest competitors U.S. industry has ever faced.

M. H. DE GRAEF
Geneva, Switzerland

CORRECTION

In "The Wacky, Wacky World of CEO Pay" (June 6), Ted C. Wetterau of Wetterau Inc. was incorrectly ranked as a result of erroneous salary information. He should have appeared as No. 103 among those making less than "rational" pay. F

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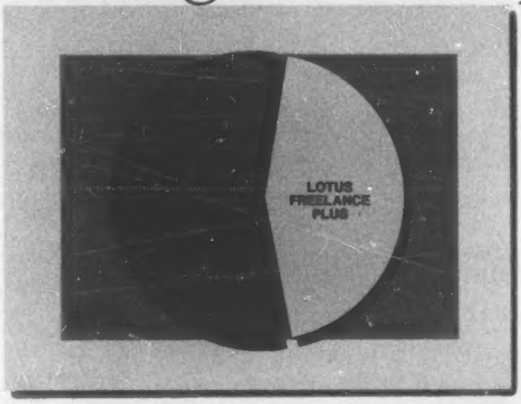

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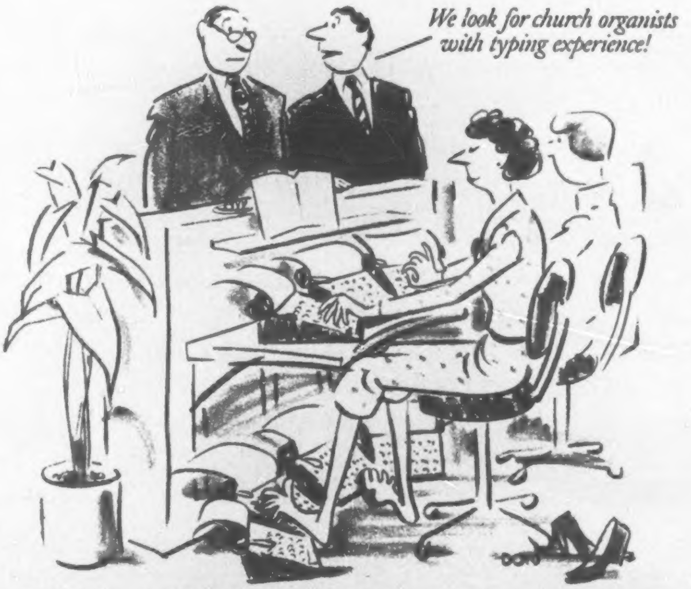
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Apple's John Sculley
is riding high on
the PC boom.

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FORTUNE

If autos had developed like computers, a Rolls-Royce would cost $2.75 and go three million miles on a gallon of gas. PAGE 42

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At age 40 the computer industry is undergoing a mid-life crisis brought on by two developments: the accelerating power of desktop microcomputers and customers' insistence that manufacturers figure out how to make their systems work together. The results will stand the $150-billion-a-year information-processing business on its ear. *by Stuart Gannes*

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COVER: Alan D. Levenson photographed Apple's CEO John Sculley holding the Knowledge Navigator, a prototype laptop computer.

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"We've made more millionaires than any company I know."

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"We surround the city just as we did during the War of Liberation."

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"Of course there is cultural fallout when the Italian finds out he is making $40,000 less than the American."

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"I just keep thinking, how would *you* like to go 24 days without a drink of water?"

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The weak dollar has helped to make the U.S. the world's low-cost producer in many industries.

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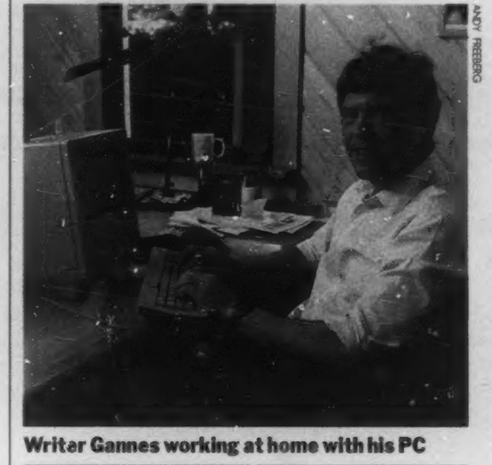
EDITOR'S DESK

THE ARRIVAL of this issue will lay to rest for another year what has become something of an annual ritual among Japan's highly competitive press corps—trying to scoop FORTUNE's rankings of the world's largest industrial corporations outside the U.S. Slow down, fellows! The special section on *Gohyakusha Kigyo Banzuke*, as you call the FORTUNE International 500, begins on page 257.


ANDY FREEBERG

Writer Gannes working at home with his PC

The Japanese aren't the only ones anxious to see how they're faring. A South Korean chief executive once protested volubly at his company's exclusion. He would be on the list, we told him, if sales from his corporate subsidiaries were added, as they are in the U.S. He changed his bookkeeping and has been a fixture on the list for some years now.

Big differences in accounting methods throughout the world make international number crunching a particularly complicated job. Thus, 35 additional stringers from such places as Kuala Lumpur, Melbourne, Jakarta, and Rio de Janeiro joined our regular staff in Asia and Europe to collect all the figures. In New York the tables were painstakingly put together by reporters Fred Katayama, a Californian who recently returned from a four-year tour in our Tokyo bureau, and Bill Bellis. The whole project was supervised by international editor Don Holt and chief of reporters Evelyn Benjamin.

What's going on in the computer industry may be even more baffling than international accounting. Our cover story, beginning on page 42, imposes order on the flurry of announcements about new products and new alliances between manufacturers. Taken individually, these make sense only to the most perceptive industry analysts. Luckily, associate editor Stuart Gannes is such a person.

His report explains how the $150-billion-a-year computer industry, at age 40, is being shaken up by the arrival of both a powerful new generation of inexpensive desktop computers and the technology to do what customers increasingly demand—make systems built by different manufacturers work together. Says Gannes: "Suddenly computer companies are facing a totally different vision of what their customers expect and what their products should do. Old notions of how to make money in the computer business are being thrown out the window."

Gannes's earlier articles ranged from profiles of computer goliaths such as IBM and Hewlett-Packard to AIDS research and the crisis with the ozone layer. After his next assignment, his byline will be missing for a while. He has won a prestigious John S. Knight Journalism Fellowship at Stanford University and will be gone for about nine months. You'll be hearing from him soon after that—most likely telling us about the latest technology quakes in Silicon Valley.

Marshall Loeb
MANAGING EDITOR

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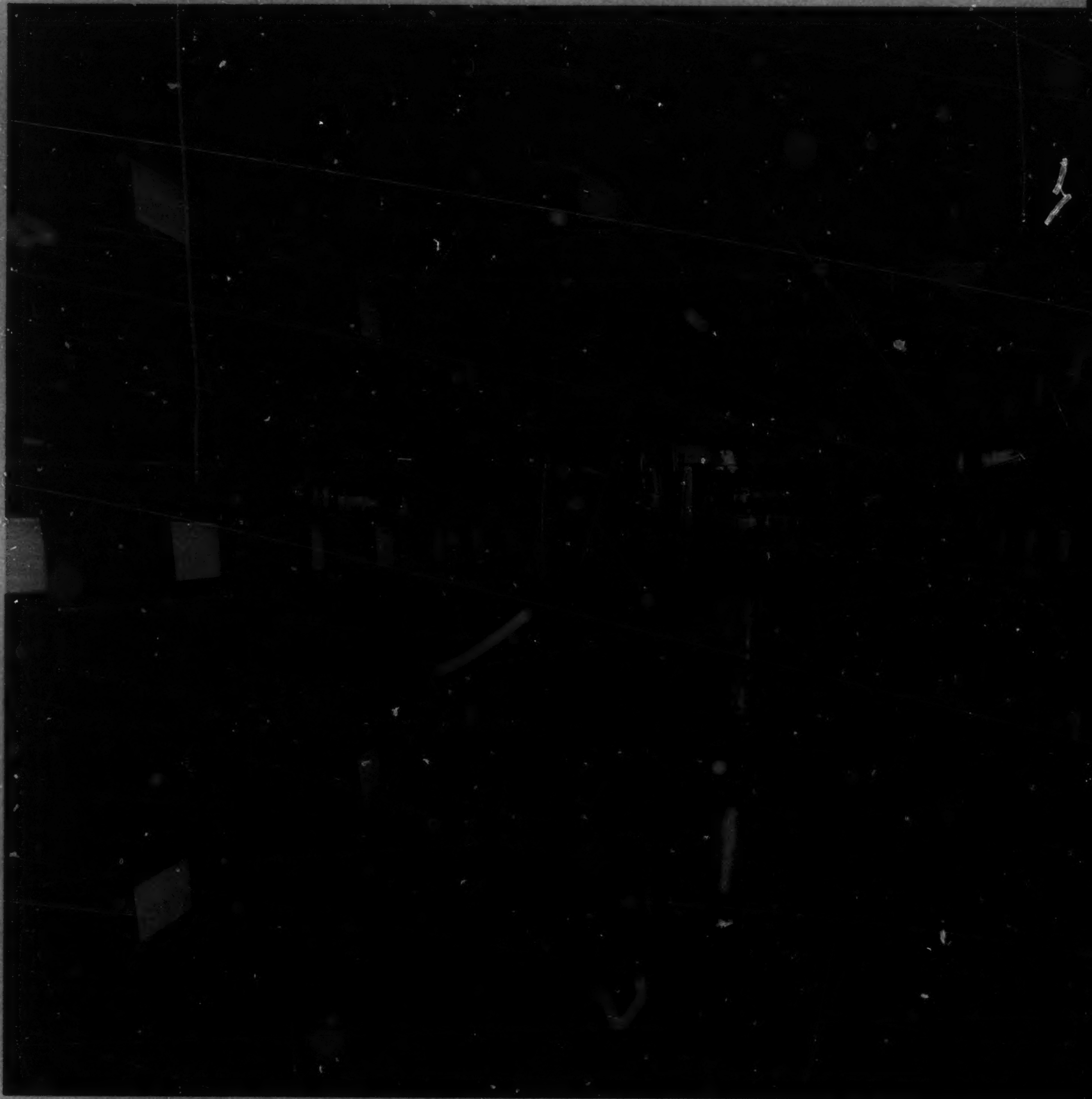
TREMORS FROM THE



Bushels of Apple Macintoshes undergo final inspection at the company's automated assembly line in Fremont, California. Desktop machines like

PHOTOGRAPH BY MARK TUSCHMAN

COMPUTER QUAKE

hem will be central to the new era of computing.

Radical changes are standing the No. 3 U.S. industry on its ear. They will transform the way we work. ■ *by Stuart Gannes*

JOHN SCULLEY, chairman of Apple Computer, turns to a VCR in his gadget-crammed office and pops in a cassette. "Let me show you how the Macintosh will work in a large corporate network," he says. On the videotape, a manager flicks on his computer and sees a diary entry for the day reminding him that one of his employees is due for a salary review. The manager types a password that links his desktop Mac to the company's mainframe computer, which handles personnel records. The Macintosh retrieves the files, runs a program that compares the employee's salary with those of his peers, and displays the results as a bar chart on the manager's screen. The manager decides how big a raise he wants to give and alerts the personnel and payroll departments electronically. Elapsed time: three minutes.

Declares Sculley: "That's a perfect example of where we think the industry is going. We're trying to create the links that will bring the desktop Macintosh into the mainstream of corporate computing."

What is remarkable about Sculley's demonstration is not how innovative it is but how overdue. Connecting different types of computer equipment seems so sensible that many customers have never understood why manufacturers didn't do it long ago. Bowing to pressure from companies that have accumulated a hodgepodge of often incompatible computers with brand names from Apollo to Zenith, the manufacturers are finally coming around.

The results will stand the $150-billion-a-year information-processing business on its ear. At age 40 the computer industry—now the third largest in the U.S., after only automobiles and oil—is undergoing a mid-life crisis brought on by two developments long in the making:

- Desktop computers have become so powerful that they can perform many of the functions of their bigger minicomputer and even mainframe brethren.
- Customers have become downright adamant that manufacturers figure out how to make their systems work together.

All the major U.S. computer makers, along with many of their Japanese and European competitors, are racing to develop systems that allow machines of different sizes and makes to communicate with each other effortlessly through vast networks. The companies are even cooperating with each other in the process—unthinkable only a few years back.

The industry that has transformed the way most people work is about to be transformed by the way most people *want* to work. The biggest beneficiaries: companies with strong positions in the desktop market, like Apple and IBM, and companies that link a variety of systems together, like Digital Equipment (DEC) and Hewlett-Packard. Computer makers that fail to adapt are likely to be taken over by larger, stronger competitors. (The boxes accompanying this article summarize the status of five key companies in the industry.) Customers too will profit by getting a fatter return on their investments in hardware and software.

As in earlier upheavals that redrew the map of the computer industry—the advent of minicomputers in the 1960s and of personal computers a decade later—the immediate catalyst for the turmoil is new technology. The jet engine opened a whole new era of aircraft design; similarly an advanced generation of lightning-fast microprocessors is revolutionizing desktop computing. Already reaching the market are powerful microcomputers that cost as little as $5,000 to $10,000 but that can handle large, complex tasks once reserved for machines 20 times more expensive.

Five years ago, right after the start of the personal computer revolution, industry experts observed that if the automobile business had developed like the computer business, a Rolls-Royce would cost $2.75 and go three million miles on a gallon of gasoline. Although today's microcomputers cost no more than those of 1983, their far more capable microprocessors offer the equivalent of ten times better gas mileage while allowing drivers to cruise in comfort

REPORTER ASSOCIATE *Mark Alpert*

at 250 mph. Even more astonishing, says Michael Homer, manager of business development at Apple: "The *rate* of improvement in microprocessor technology keeps increasing."

Breakthroughs in performance are opening up new markets for microcomputers. Many customers who have bought the souped-up new PCs to speed the work they have traditionally used PCs for—financial spreadsheets and word processing, for example—are discovering that desktop machines can handle all sorts of additional computing tasks, from engineering design to newsletter publishing. Says Homer: "As personal computers get more horsepower, more of the traditional functions of larger computers will keep falling into our price band, which is $10,000 and under. In fact, PCs are already a workable alternative to minicomputers for many companies."

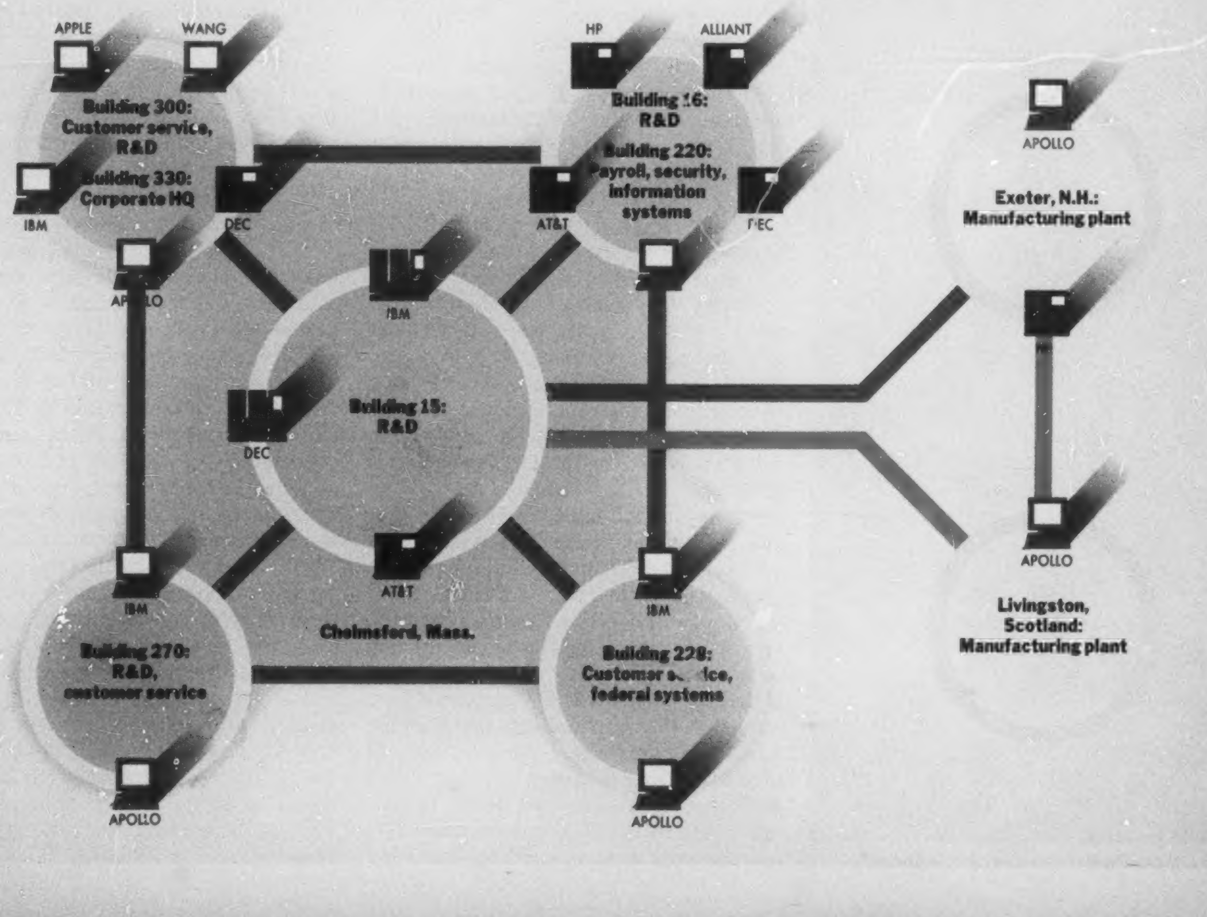
EQUALLY impressive is the increasing versatility of communications networks. Says John Young, chief executive of Hewlett-Packard: "The central reason customers haven't been getting as much value out of their computers as they would like is simply the inability to tie them together. That barrier is about to disappear."

Up-to-the-nanosecond networks like the one built by engineers at Apollo Computer of Chelmsford, Massachusetts, let thousands of Apollo employees in far-flung locations share data and software programs regardless of the basic compatibility of the machines they operate (see diagram below). With the network, a division manager using an Apollo workstation to prepare quarterly reports can instantly obtain sales data stored on Wang Laboratories systems in branch offices or get inventory figures from a Hewlett-Packard minicomputer at a manufacturing site.

For most companies the era of network computing is not yet a reality, but it is arriving with stunning speed. A strong synergy is emerging between the new desktop machines and modern computer networks. Each makes the other more useful and thus

HOW ONE COMPANY TIES IT ALL TOGETHER

One of the world's most sophisticated corporate networks, built by Apollo Computer for its own use, lets more than 3,000 employees share computers from nine different makers. Rings of coaxial cable link all the machines at the company's Massachusetts headquarters, which is connected to the manufacturing plants by leased phone lines.


Microcomputers, including all desktop systems
Minicomputers, including mini-supercomputers
Mainframes
APPLE
WANG
HP
ALLIANT
Building 300: Customer service, R&D
Building 330: Corporate HQ
IBM
DEC
APOLLO
Building 16: R&D
Building 220: Payroll, security, information systems
AT&T
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Building 15: R&D
DEC
AT&T
Chelmsford, Mass.
IBM
Building 270: R&D, customer service
APOLLO
IBM
Building 228: Customer service, federal systems
APOLLO
APOLLO
Exeter, N.H.: Manufacturing plant
APOLLO
Livingston, Scotland: Manufacturing plant

ILLUSTRATIONS BY ELIOT BERGMAN INC.

more attractive. Computer industry analyst Mark Stahlman of the Wall Street investment firm of Sanford C. Bernstein estimates that in just four years sales of high-powered microcomputers, along with other components of highly integrated networks, have grown to constitute 10% of the computer business. What's more, they are increasing three times faster than the industry as a whole. "By the early 1990s these systems will account for the majority of growth in the industry," he says.

THE IMPLICATIONS for computer makers are clear. The spread of network computing has already benefited companies at the high-performance end of the desktop market such as Apollo and Sun Microsystems, both of which make powerful workstations used mainly by scientists and engineers. Now the technology revolution is toppling the longstanding business assumptions of dozens of larger manufacturers. Most important, the new networks will demolish the idea that customers must stay married to a single supplier simply because they have made an enormous investment in hardware, software, and training. When customers can link different brands of equipment with ease, they will be in a far stronger position to demand competitive bids.

Customers with advanced networks are also more likely to buy a variety of specialized computers, much as stereo enthusiasts mix amplifiers, tuners, CD players, tape decks, and speakers from different manufacturers to form a complete sound system. The trend has already begun with supercomputers, which are special-purpose machines built to serve large groups of users. More than 300 engineers share a Cray supercomputer at General Motors' research lab in Warren, Michigan, for aerodynamics studies and simulated crash testing.

As data links improve, the network idea will spread to other areas of computing—such as office automation systems, where specialized computers could coordinate the use of a company's printers, say, or route electronic-mail messages to assorted destinations. Says Sculley: "The single largest earthshaking fact in the industry right now is the shift to multiple suppliers of information systems. Customers are saying they want the best solution for each of the things they want to do."

IBM

TOTAL REVENUE (last four quarters)	**$55.3 BILLION**
HARDWARE SALES	
MICROS	**$4.9 BILLION**
MINIS	**$3.2 BILLION**
MAINFRAMES	**$16.4 BILLION**
STOCK PRICE	
JULY 1, 1987	**$164**
JULY 1, 1988	**$127**

OUTLOOK

The only player with a strong presence in all three computer markets, IBM is working hard toward making its machines talk to each other and to other companies' computers.

ANDY FREEBERG

Chairman John F. Akers

None of the major players in the computer industry is perfectly positioned to take advantage of the intertwined trends to integrated networks and ever more powerful micros. Each company approaches the new era with a combination of strengths and weaknesses. Their strategies differ, but to a large degree they add up to a simple formula: Push for an advantage where you are strong, form an alliance where you are weak. This accounts for the bewildering array of recent lawsuits, joint ventures, and newly launched efforts to develop uniform communications standards.

A good example of the strategy is found at Digital, which excels in networking but has never been important in the PC market. Hence Digital's joint technology agreements with Apple and Compaq, two standouts in microcomputers. Even mighty IBM, which practically invented proprietary systems, is taking part in consortiums that promote industrywide solutions to problems of computer incompatibility.

With desktops emerging as the crown jewels of computerdom, personal computer manufacturers are hurrying to improve their machines, especially by adding networking capabilities. American businesses have bought more than 15 million personal computers. Less than 30% of them are hooked up to networks, but soon the great majority of them may be. "By 1991, 90% to 95% of our machines will be used in networks," says Bill Lyons, IBM's general manager of personal systems merchandising. Indeed a much ballyhooed feature of IBM's new PS/2 series of advanced personal computers, the so-called Micro Channel, helps the machines link up with IBM minicomputers and mainframes. The company contends that very shortly personal computers will not only be connected through local area networks, but also function as terminals for large data-processing systems.

From airline reservation desks to the factory floor, more than 20 million "dumb" terminals are in use throughout the U.S., serving as remote links to a mainframe computer. They're called dumb because they can't do any processing on their own, and to use them properly requires mastering strict rules and procedures. The latest personal computers, by contrast, use on-board microprocessors to run internal software that displays information and instructions far more simply.

Apple and other PC makers hope to seize a chunk of the dumb terminal market. Says Sculley: "There are two major differences between the last generation of personal computers and the models available today. The first is that the new PCs are far easier to use. The second is networking, which is a big part of how these machines will operate. When you get to sophisticated networking, if anything requires more performance than your computer has, you can farm it out to other machines on the network. The personal computer will become the epicenter of the whole industry."

SCULLEY, the intense ex-president of Pepsi-Cola brought to Apple by company founder Steve Jobs in 1983, is a leading apostle of the new style of network computing. In his autobiography, *Odyssey*, published last year, Sculley describes how he devised the Pepsi Challenge and adopted the 32-ounce bottle in an effort to "nullify a competitor's strength by changing the ground rules." At Apple, Sculley's first forays against IBM were focused on desktop publishing—an application that took advantage of the Macintosh's advanced graphics. He explains: "Desktop publishing was our Trojan horse. It got us in the door. We now have infiltrated beyond that with personal productivity applications, like project management software. Now there are hundreds of thousands of dumb terminals that are going to get converted."

Certainly, with Sculley in charge, Apple is the most marketing-oriented competitor in the desktop business. And the Macintosh—Steve Jobs's legacy to Apple—comes closer right now to satisfying the requirements of network computing than any other desktop machine. In fact, the Mac's famed graphic displays and ease of use are widely imitated by other manufacturers—unlawfully, Sculley claims. Apple is suing Hewlett-Packard and software publisher Microsoft, complaining that they copied the distinctive "look and feel" of the Macintosh software in their own products. H-P and Microsoft deny the allegations.

Whether Apple can take full advantage of its lead is not yet clear. Four years ago, in an untimely burst of enthusiasm, Sculley and Jobs dangerously overextended Apple by building huge inventories too far in advance of customer demand, and the company flirted with disaster. Now, most industry experts agree, Apple is primed for growth. Smith Barney computer analyst David Readerman predicts that sales will increase 40% this year, to $3.8 billion. Sculley harbors even grander ambitions. "The next revenue milestone for Apple isn't $5 billion, but $10 billion. We hope to be there in the early 1990s."

DEC

TOTAL REVENUE (last four quarters)	**$10.8 BILLION**
HARDWARE SALES	
MICROS	**$343 MILLION**
MINIS	**$4.8 BILLION**
MAINFRAMES	**$447 MILLION**
STOCK PRICE	
JULY 1, 1987	**$165**
JULY 1, 1988	**$114**

OUTLOOK

The leading supplier of minicomputers wants to build large corporate computing networks. Its continuing weakness: an inability to crack the personal computer market.

SETH RESNICK—PICTURE GROUP

President Kenneth Olsen

UNISYS

TOTAL REVENUE (last four quarters)	**$9.7 BILLION**
HARDWARE SALES	
MICROS	**$246 MILLION**
MINIS	**$1.1 BILLION**
MAINFRAMES	**$2.7 BILLION**
STOCK PRICE	
JULY 1, 1987	**$41**
JULY 1, 1988	**$36**

OUTLOOK

As sales growth slows for the company's Burroughs and Sperry mainframes, Unisys hopes to sell more desktops and networking equipment. The likeliest route: acquisitions.

CRAIG PORTER

Chairman W. Michael Blumenthal

FOR COMPANIES that are already big, networks may be the most exciting growth opportunity. Designing and maintaining large communication systems that permit hundreds, even thousands, of computers to communicate and share data could be an $18-billion-a-year business by 1992, according to the Gartner Group, a market research firm in Stamford, Connecticut. Virtually every large company, from manufacturing concerns to financial service enterprises, will require these systems. Insists Unisys Chairman W. Michael Blumenthal: "The ability to do well in the industry will not depend on who builds the best machine for the desktop, because it will be a fairly standard machine. The gravy is in connecting everything and being able to service and support the multimachine networks." He says Unisys's $310 million acquisition last year of Timeplex, a leading supplier of networking equipment, was a major step in that direction.

At rival Digital, President Kenneth Olsen claims: "Networking is the biggest opportunity for us. We picked that area 15 years ago." Digital has indeed been a leader in networking within its own product line. The company's internal network, which links 27,000 machines in 66 nations from the U.S. to Israel to Japan, may well be the most sophisticated in the world. Olsen compares it to an electric-power grid: "We can plug computers in like generators and send processing power wherever it's needed. When we run out of computing capacity on the East Coast in the morning, our network automatically absorbs more from the West Coast."

Digital's elegant network suffers from one crucial shortcoming, perhaps the price of pioneering. Many of its most powerful features will not work with computers made by other manufacturers. Unfortunately for Digital, as Hewlett-Packard's Young puts it, "when you walk in the door, you don't find any customers with nothing. They all have lots of different somethings." Communications links, where they exist at all, are fairly crude. In most cases customers send information back and forth awkwardly, like semaphore operators at sea in a storm. Software that works on one make of machine often will not run on another.

THE BENEFITS of tightly integrated information networks are many. They eliminate the inefficiencies of maintaining multiple training staffs and software. In the future, say industry experts, networks will function as the brains and central nervous system for all the specialized information processing that goes on in large enterprises. The first great wave of computerization in the 1960s and 1970s consisted largely of automating complex manual systems, such as payroll and accounting. Then, as computers improved, individual departments, manufacturing divisions, and branch offices of large companies bought a variety of new computers to perform more specialized jobs—such as running an assembly line or producing a magazine. In the third wave, advanced networks could join these islands of automation together seamlessly.

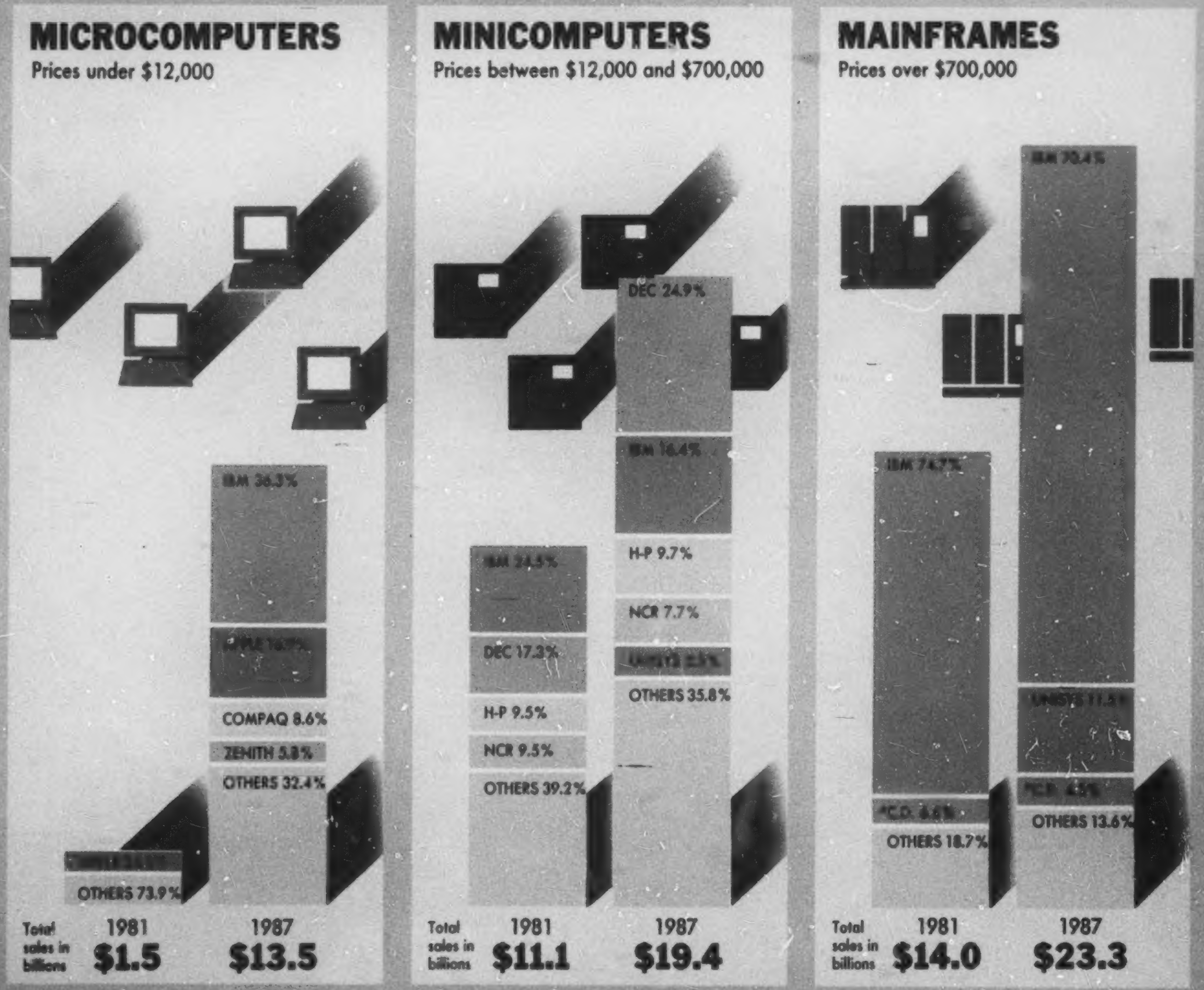
BUT NOT without some practical problems. For example, many users of today's computer networks are dangerously vulnerable to the latest scourge of the industry: computer "viruses." These are essentially rogue programs designed by hackers and sneaked into other software to wreak havoc on the innards of every computer they infect. The most virulent viruses instruct a machine to erase useful data, or even to crash altogether. Although networks are not the culprits, they can act as innocent carriers, spreading a virus from one machine to another. Industry experts say that future network equipment will have to be equipped with "vaccine" programs that detect computer viruses and prevent their transmission.

Customers who dream of networking nirvanas sometimes awaken unpleasantly to the complexities of the job. Those who persist can end up paying dearly for workable solutions. Even the most basic plans may take months, or years, to put in place. Last year chemical maker Du Pont, which buys computers from IBM, Digital, and Hewlett-Packard, decided to set up a unified electronic-mail system for its employees. Getting the three unique networks to exchange messages with each other cost more than $1 million in addition to the basic software for the project.

One major obstacle has barred the way

THE LAST STRIVES TO BE FIRST IN A BOOMING MARKET

Sales of microcomputers by the top 100 U.S. makers are growing faster than any other segment of the industry, and will soon surpass those of minicomputers. IBM dominates mainframes and micros but has lost market share—and leadership—in minis.



*CONTROL DATA

SOURCE: GARTNER GROUP YARDSTICK

to establishing truly flexible networks: lack of uniform standards. Manufacturers of telephone-answering devices, fax machines, or even switching systems for whole cities recognize that their products must share a common network. With computers, by contrast, a multitude of products is already in use and the problem is to design a network that can accommodate them. Creating a network to handle the rat's nest of incompatible machinery already out there is both a technological challenge and a diplomatic nightmare. Seemingly neutral decisions can tilt the advantage to one manufacturer over another. For example, computer companies cannot agree on specifications for universal electronic-mail systems largely because each manufacturer favors a design that would minimize the amount of reengineering necessary for its own existing system.

Operating systems present an even tougher puzzle. These sets of computer instructions control a variety of machines, from desktop workstations to supercomputers. For the past five years, AT&T has claimed it had the best candidate for a common operating system in Unix, invented by scientists at Bell Labs in the late 1960s. AT&T licensed it freely. The prime attraction of Unix is that it works on lots of different computers, which makes it ideal for networking. (By contrast, the MS-DOS operating system used on most personal computers is inflexible. It functions only on machines built with microprocessors designed by a single manufacturer, Intel.) There is just one hitch: AT&T is no longer on the sidelines of the computer industry. The main reason AT&T agreed to spin off its Bell operating companies in 1984 was to get into the computer business.

THE POPULARITY of Unix increased during the early 1980s. Other computer companies did not mind selling AT&T's product, because they considered the reconstituted phone company a feeble competitor. Its first computers, introduced in 1984, flopped. But the scoffing ceased abruptly last year, when AT&T set up a partnership with Sun Microsystems to improve Unix and build a new line of computers based on Sun's high-performance microprocessors. Says Nina Lytton, an analyst for the Yankee Group in Boston: "Suddenly the industry saw AT&T and Sun as a competitive Janus—specifying standards with one face and selling them with the other. Worse, it looked as though Sun would be able to exploit its close relationship with AT&T to get its own Unix-based computers to market faster."

HEWLETT-PACKARD

TOTAL REVENUE (last four quarters)	**$9.0 BILLION**
HARDWARE SALES	
MICROS	**$625 MILLION**
MINIS	**$1.9 BILLION**
MAINFRAMES	**None**
STOCK PRICE	
JULY 1, 1987	**$60**
JULY 1, 1988	**$55**

OUTLOOK

The well-regarded minicomputer maker wants to win big in the hot market for technical computers. But it faces stiff competition from DEC and young rivals like Sun and Apollo.

TOM ZIMBEROFF

Chief Executive John Young

In May seven of AT&T's biggest competitors rebelled. Led by Digital, Hewlett-Packard, and IBM, they contributed $90 million to finance a consortium called the Open Software Foundation, which is developing an alternative to Unix. Now the two factions are at a standoff, each claiming to be more "open" than the other. Frustrated customers predict the impasse will drag on for a long time.

For decades efforts to develop broad networking standards have been stymied by competitive considerations. There are no fewer than 23 world standards organizations, including the Corporation for Open Systems—itself a coalition of 17 leading computer makers and dozens of major customers. All 23 groups demonstrated a number of prototype communications standards in June at a splashy convention in Baltimore called Enterprise '88. But the $50 million event disappointed customers who came to shop for equipment that works right now. They found precious little to buy. Industry experts concede that developing a full range of standards-based products will take years.

Some of the largest computer companies are jumping into the gap with their own solutions. IBM has been working for more than two years on a design project called Systems Application Architecture, or SAA. Its twin goals: to provide links to other manufacturers' products and to permit IBM's own diverse computer lines to be integrated for the first time. Says Michael Killen, a Palo Alto, California, computer consultant who has just written a book called *IBM: The Making of the Common View*: "The importance of this strategy for IBM cannot be overestimated. It is the company's response to the lead that its competitors have built up in networking. Without SAA, you could write IBM off."

WITH IT, IBM stands to become much more competitive than it is today. SAA promises to cure IBM's biggest weakness, the incompatibilities among its mainframe, mini, and personal computers. Its highly regarded new generation of products, including the PS/2 personal computers and the AS/400 line of minicomputers unveiled in June to considerable Wall Street applause, are designed to work in large corporate networks and to run the same software.

Digital and Hewlett-Packard are also working hard to broaden their networking capabilities to include other companies' products. Says Peter Smith, Digital's vice president of product marketing: "We can concentrate on integrating other folks' equipment because we don't have to worry about incompatibilities in our own product line." Digital has already introduced links to other computer makers' systems, particularly IBM's. Hewlett-Packard offers similar connections for its customers. Says John Young: "We decided more than five years ago to abandon our proprietary networking schemes. Today we have the widest range of networking capabilities of any company in the world."

The demand for standards transcends networking. Customers hope that standards will make rival machines essentially interchangeable and pave the way for competitive bidding on large purchases. The seeds of this idea were sown in personal computers when the de facto IBM standard created a huge opportunity for Compaq and other clonemakers to plunge in and compete for a piece of the business. Now the federal government—which buys $17 billion of computers a year, making it the biggest customer in the world—and other major users like General Motors and Boeing are calling for "open" standards.

LAST YEAR, for example, the U.S. Air Force declared that all bidders for a $4.5 billion computer contract had to offer machines that could run the Unix operating system. Infuriated, Digital protested to the Federal Board of Contract Appeals. When the board ruled for the Air Force, Digital withdrew from the competition. Sniffed Olsen: "There is no sense in bidding on a contract that is filled with arbitrary, useless specifications. People without any job to be done don't make good computer customers. The Air Force will never fight a war so they don't really care."

Other minicomputer makers, like Prime, Wang, Data General, and Tandem, cannot afford to be so haughty. Their profits have weakened in recent months. They are eager to support Unix—or any other standard the industry can agree on. Says Data General's Tom West, whose design team was the subject of Tracy Kidder's 1981 best-seller, *The Soul of a New Machine*: "We're starting over with a clean slate. At some point you have to break with the past."

For all the problems companies face in adjusting to revolutionary change, in the future the information-processing market as a whole may grow faster than ever. In a world of networking, desktop computers will be the only general-purpose machines that customers buy. Companies that hope to sell larger or more specialized computers will have to make machines that significantly outperform their competitors'. Inevitably, too, as customers gain greater leverage over their suppliers, computer makers' profit margins will decline even as product development expenses rise. That's a natural situation for industrywide consolidation. The 1986 merger of Burroughs and Sperry to form Unisys marked the opening of a new round of mergers and acquisitions. Others will certainly follow.

For the moment Apple is in the best position to turn the forces shaping the industry to its own advantage. Just as the spread of mainframes and minicomputers transformed IBM, Digital, and Hewlett-Packard into towering giants, the new era of network computing could just elevate Apple—the most innovative personal computer company—to the top ranks of the industry by the year 2000. ■

APPLE

TOTAL REVENUE (last four quarters)	**$3.3 BILLION**
HARDWARE SALES	
MICROS	**$2.3 BILLION**
MINIS	**None**
MAINFRAMES	**None**
STOCK PRICE	
JULY 1, 1987	**$40**
JULY 1, 1988	**$47**

OUTLOOK

Potentially the biggest beneficiary of the trend to desktop computers, its chief product, the company must prove that its machines are useful additions to large corporate networks.

ALAN D. LEVENSON

Chairman John Sculley

SCULLEY SOUNDS OFF ON APPLE AND THE INDUSTRY

Five years after Steve Jobs challenged him to stop selling soft drinks at PepsiCo and start changing the world, Apple CEO John Sculley has decided to take advantage of an employee perk and enjoy a nine-week paid leave. Some pre-sabbatical thoughts:

On the sabbatical:

I'm essentially an intuitive leader, and you can only be intuitive about something you understand. One of the problems I had when I first came to Apple was that I didn't know enough to be intuitive. I had to learn the technology, the company, and the industry. This is my first chance to step back and reflect.

On industry trends:

The industry has come to agree on the need for standards in communications and networking. Once companies get sophisticated networks, they will be connecting people to them, not just computers, and that's what Apple does best: connecting people to information.

On IBM:

IBM is an extraordinarily fine company, but it faces the most challenging task of any computer company in the years ahead. Management senses the earth-shaking fact that the industry is shifting from a single-supplier world to a multi-supplier world. They're trying to recast their corporation to compete in it.

On Digital:

People have underestimated Digital. Even when Ken Olsen's views were unpopular, he was unwavering in his vision. He was the first to understand the crucial importance of networks. If Digital stays focused on turning corporate networking into a reality, it will be even more successful than it already is.

On Hewlett-Packard:

The hallmark of Hewlett-Packard is customer loyalty, and that will continue as long as the company offers high-performance minicomputers. But in desktop machines, it is not as aggressive in marketing as some of its competitors.

On the future:

In this industry great products are only pieces of the foundation. Now we've got to do what Alfred Sloan did at General Motors. We've got to put the pieces together and envision what corporations are going to look like in the future. The successful ones are not going to look anything like what we've seen in the past. And I think I can help shape a corporation, not just the products.

FORTUNE

THE FORTUNE INTERNATIONAL 500

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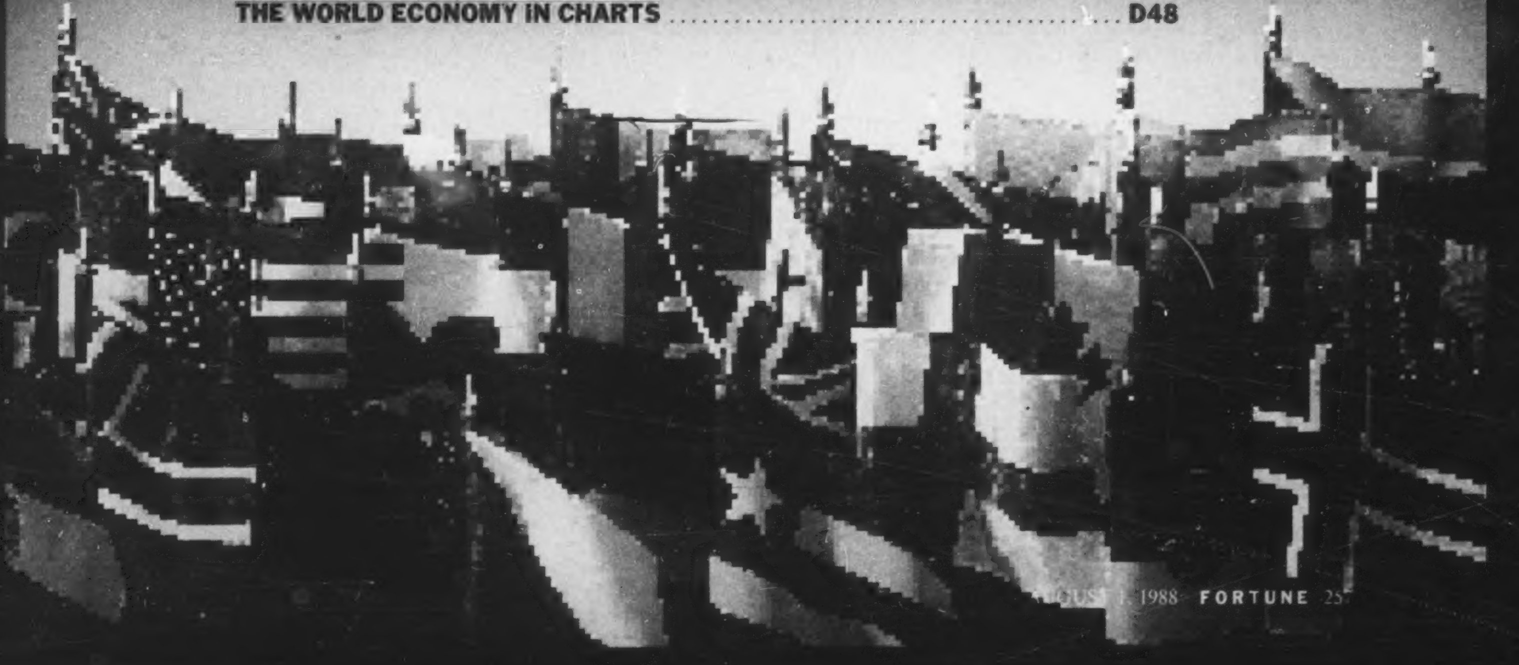


THE WORLD'S 50 BIGGEST INDUSTRIAL CORPORATIONS

NOT MUCH moves and shakes in the world without them. The 50 biggest industrial companies employ 8.8 million people, more than the population of Sweden. They generated sales in 1987 of $1.5 trillion. Profits totaled $56 billion, nearly twice the gross national product of Ireland. These companies set the styles, invest the money, build the plants—sometimes altering the economies and ecologies of vast regions.

ANDY SNOW—PICTURE GROUP

Honda makes sparks fly in Marysville, Ohio.

FORTUNE's compilation of the world's top 50 draws from both the International 500 (beginning on page D7) and the list of the 500 biggest industrial companies in America, which was published April 25. It is a unique snapshot that shows just how balanced the global economy is. Twenty companies are American, 20 European, only one is from the Southern Hemisphere, and nine are Asian (you guessed it—eight are Japanese and the other is Korean).

The companies are, for the most part, legacies of the industrial and technological revolutions of the last century and the early years of this one. Many are named for entrepreneurs who jumped into fledgling industries—automobiles, electricity, aviation—at a time when even visionaries could not imagine their companies' potential.

So entrenched are these industrial giants that the mainstays—General Motors, Royal Dutch/Shell, Exxon, Ford, Toyota, Du Pont, Unilever--appear year after year in roughly the same order. Even at the margins, though, changes illuminate broad trends. USX dropped off the list since last year, underscoring the continuing contraction of the once mighty American steel industry. So did Thyssen, the West German steelmaker, exemplifying similar problems on the Continent. The oil business's ongoing recession knocked off Kuwait Petroleum and Total, the French refiner. Among the newcomers were two electronics companies: NEC, Japan's biggest manufacturer of personal computers, and CGE, the French conglomerate that produces everything from nuclear plants to telephones. CGE's acquisition of ITT's European telecommunications operations lifted it to No. 30.

As a group, the top 50 turned in a robust performance, reflecting the continued growth of the world economy in 1987. Reversing last year's declines, sales increased 14% and profits 17%. The auto and electronics industries led the way, but nothing contributed more than the weak U.S. dollar.

For the second consecutive year, the dollar drifted lower in relation to the yen and major European currencies. The decline worked wonders on some otherwise drab numbers. Daimler-Benz's modest revenue increase of 3% in deutsche marks, for instance, translated into 24% in U.S. currency. Because the Korean won moved down more or less with the dollar, Sam-

Communications satellite (right) built by General Electric will beam TV programs across Europe. Blue cones absorb sound during tests.

PHOTOGRAPH BY JOE MCNALLY

sung was able to undersell Japanese competitors in the U.S. market for hot consumer items such as microwave ovens.

Foreign carmakers had a remarkable year, with sales rising 27%. The Japanese held on to the fast lane. Toyota Motor turned 50 years old but showed no signs of slowing down. It cracked the top ten with a 31% burst in sales. Honda Motor, whose sales soared 38%, entered the top 50 for the first time, at No. 39. Its highly successful Acura won raves from auto critics as well as investors.

Restructuring helped France's Renault bounce back. A loss of $840 million in 1986 turned into a $610 million profit last year. Rival Peugeot also improved its standing by doubling earnings. In Italy, Fiat's takeover of IRI's Alfa Romeo helped it move up ten places to No. 17, past Chrysler and Nissan. On the strength of rising domestic car sales, Volvo squeezed onto the list as No. 50.

In Detroit, Ford and Chrysler did a creditable imitation of their overseas counterparts. Brisk sales of Ford's stylish Taurus cars helped drive up profits 41%. Chrysler acquired American Motors and increased sales by 17%. Only General Motors lagged behind. Though GM held on to its No. 1 rank as the biggest company in the world, it continued to lose market share.

ELECTRONICS COMPANIES had a dynamic year. General Electric's 12% rise in sales helped the company remain the biggest in its industry. More impressive was GE's 17% increase in net income. AT&T's revenue fell a bit, but its restructuring raised profits a remarkable 15-fold. Non-American companies had even better sales increases, owing in large part to the weakness of the dollar. All advanced in rank except Philips of the Netherlands and Matsushita Electric Industrial of Japan. Philips's large

RANK 1987	'86	COMPANY	HEADQUARTERS	INDUSTRY	SALES $ Millions	PROFITS $ Millions
1	1	**GENERAL MOTORS**	DETROIT	MOTOR VEHICLES	101,781.9	3,550.9
2	3	**ROYAL DUTCH/SHELL GROUP**	LONDON/THE HAGUE	PETROLEUM REFINING	78,319.3	4,725.8
3	2	**EXXON**	NEW YORK	PETROLEUM REFINING	76,416.0	4,840.0
4	4	**FORD MOTOR**	DEARBORN, MICH.	MOTOR VEHICLES	71,643.4	4,625.2
5	5	**INTERNATIONAL BUSINESS MACHINES**	ARMONK, N.Y.	COMPUTERS	54,217.0	5,258.0
6	6	**MOBIL**	NEW YORK	PETROLEUM REFINING	51,223.0	1,258.0
7	7	**BRITISH PETROLEUM**	LONDON	PETROLEUM REFINING	45,205.9	2,280.1
8	12	**TOYOTA MOTOR**	TOYOTA CITY (JAPAN)	MOTOR VEHICLES	41,455.0	1,699.6
9	11	**IRI**	ROME	METALS	41,270.0	146.5
10	8	**GENERAL ELECTRIC**	FAIRFIELD, CONN.	ELECTRONICS	39,315.0	2,915.0
11	13	**DAIMLER-BENZ**	STUTTGART	MOTOR VEHICLES	37,535.5	970.2
12	10	**TEXACO**	WHITE PLAINS, N.Y.	PETROLEUM REFINING	34,372.0	(4,407.0)
13	9	**AMERICAN TEL. & TEL.**	NEW YORK	ELECTRONICS	33,598.0	2,044.0
14	14	**E.I. DU PONT DE NEMOURS**	WILMINGTON, DEL.	CHEMICALS	30,468.0	1,786.0
15	18	**VOLKSWAGEN**	WOLFSBURG (W. GER.)	MOTOR VEHICLES	30,392.7	242.1
16	19	**HITACHI**	TOKYO	ELECTRONICS	30,332.2	617.3
17	27	**FIAT**	TURIN	MOTOR VEHICLES	29,642.8	1,830.2
18	25	**SIEMENS**	MUNICH	ELECTRONICS	27,462.9	649.6
19	15	**MATSUSHITA ELECTRIC INDUSTRIAL**	OSAKA	ELECTRONICS	27,325.7	862.4
20	16	**UNILEVER**	LONDON/ROTTERDAM	FOOD	27,128.8	1,278.6
21	21	**CHRYSLER**	HIGHLAND PARK, MICH.	MOTOR VEHICLES	26,257.7	1,289.7
22	22	**PHILIPS' GLOEILAMPENFABRIEKEN**	EINDHOVEN (NETH.)	ELECTRONICS	26,021.2	316.9
23	17	**CHEVRON**	SAN FRANCISCO	PETROLEUM REFINING	26,015.0	1,007.0
24	26	**NISSAN MOTOR**	TOKYO	MOTOR VEHICLES	25,650.5	123.9
25	31	**RENAULT**	PARIS	MOTOR VEHICLES	24,539.7	613.7

■ U.S. ■ EUROPE ■ ASIA ■ SOUTH AMERICA • NOT ON LAST YEAR'S LIST

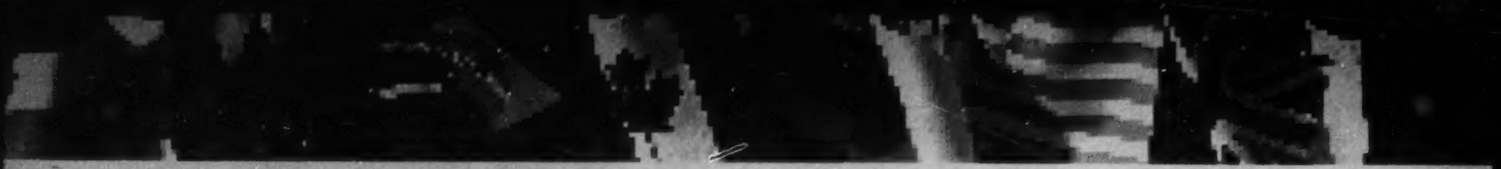
American sales dampened the boost it might have received from the dollar. Toshiba's sales inched down 2% in yen but rose 36% in dollars, propelling the company ten ranks higher. Power systems generated big sales for Hitachi of Japan and West Germany's Siemens. A $1.9 billion nuclear power plant Siemens built in Brokdorf, West Germany, helped the company boost revenues 35%. Samsung's strong performance in producing inexpensive chips and home appliances lifted its revenues.

Chemical industry sales were generally strong all over the world, helping push up Du Pont's sales 12% and profits 16%. Britain's Imperial Chemical Industries increased revenues 9% and profits a handsome 36%. ICI benefited from two recent American acquisitions, Glidden Paints and Stauffer Chemicals. Sales of West Germany's BASF fell almost 1% in deutsche marks but rose 20% in dollars, enough to lift the company three places to No. 26. Though oil prices remained depressed, sales rose 9% at Exxon and 8% at Royal Dutch/Shell. But the titans traded places. Mostly because of differences in exchange rates, Shell took over Exxon's spot as No. 2 company in the world.

The oil business produced the top 50's biggest money loser: Texaco. The company, which agreed to settle its bitter suit with Pennzoil for $3 billion, reported a $4.4 billion loss for the year. Joining Texaco on the loser's list was Tenneco, the Houston-based conglomerate that started as a pipeline company in the 1940s and has branched into oil and gas production, chemicals, packaging, farm machinery, and shipbuilding. Among non-U.S. companies, only Nippon Steel lost money. Now that the strong yen has weakened its ability to offer competitive prices, the company is trying to diversify into computers.

– **Frederick Hiroshi Katayama and William Bellis**

RANK		COMPANY	HEADQUARTERS	INDUSTRY	SALES	PROFITS
1987	'86				$ Millions	$ Millions
26	20	**ENI**	ROME	PETROLEUM REFINING	**24,242.5**	**483.6**
27	23	**NESTLÉ**	VEVEY (SWITZERLAND)	FOOD	**23,625.9**	**1,224.8**
28	29	**BASF**	LUDWIGSHAFEN (W. GER.)	CHEMICALS	**22,383.7**	**584.7**
29	24	**PHILIP MORRIS**	NEW YORK	TOBACCO	**22,279.0**	**1,842.0**
30	•	**CGE (CIE GÉNÉRALE D'ÉLECTRICITÉ)**	PARIS	ELECTRONICS	**21,204.3**	**304.8**
31	33	**ELF AQUITAINE**	PARIS	PETROLEUM REFINING	**21,186.4**	**690.2**
32	35	**SAMSUNG**	SEOUL	ELECTRONICS	**21,053.5**	**249.3**
33	28	**BAYER**	LEVERKUSEN (W. GER.)	CHEMICALS	**20,662.2**	**833.3**
34	3[illegible]	**HOECHST**	FRANKFURT	CHEMICALS	**20,558.1**	**766.6**
35	42	**TOSHIBA**	TOKYO	ELECTRONICS	**20,378.1**	**213.8**
36	30	**AMOCO**	CHICAGO	PETROLEUM REFINING	**20,174.0**	**1,360.0**
37	41	**PEUGEOT**	PARIS	MOTOR VEHICLES	**19,658.2**	**1,116.1**
38	43	**IMPERIAL CHEMICAL INDUSTRIES**	LONDON	CHEMICALS	**18,232.8**	**1,245.8**
39	•	**HONDA MOTOR**	TOKYO	MOTOR VEHICLES	**17,237.7**	**516.2**
40	38	**UNITED TECHNOLOGIES**	HARTFORD	AEROSPACE	**17,170.2**	**591.7**
41	40	**OCCIDENTAL PETROLEUM**	LOS ANGELES	FOOD	**17,096.0**	**240.0**
42	39	**PROCTER & GAMBLE**	CINCINNATI	SOAPS, COSMETICS	**17,000.0**	**327.0**
43	45	**ATLANTIC RICHFIELD**	LOS ANGELES	PETROLEUM REFINING	**16,281.4**	**1,224.3**
44	34	**RJR NABISCO**	ATLANTA	TOBACCO	**15,868.0**	**1,209.0**
45	44	**PETROBRÁS (PETRÓLEO BRASILEIRO)**	RIO DE JANEIRO	PETROLEUM REFINING	**15,640.5**	**171.5**
46	36	**BOEING**	SEATTLE	AEROSPACE	**15,355.0**	**480.0**
47	•	**NEC**	TOKYO	ELECTRONICS	**15,325.1**	**94.0**
48	46	**TENNECO**	HOUSTON	PETROLEUM REFINING	**15,075.0**	**(218.0)**
49	•	**NIPPON STEEL**	TOKYO	METALS	**14,639.8**	**(69.7)**
50	•	**VOLVO**	GÖTEBORG (SWEDEN)	MOTOR VEHICLES	**14,576.0**	**730.4**
		TOTALS			**1,504,492.5**	**56,735.1**



THE INTERNATIONAL 500

THE FORTUNE DIRECTORY OF THE BIGGEST INDUSTRIAL CORPORATIONS OUTSIDE THE U.S.

THE FORTUNE International 500 had a dazzling year despite the October stock market crash. Sales for the biggest non-American industrial companies in 1987 rose 20%, and net income soared 51%. The biggest earnings gains came in Europe, where companies benefited from a wave of restructuring and tax cutting.

Japan's major exporting companies bounced back strongly after struggling for two years to keep up margins in the face of the strong yen. But since most have fiscal years ending in the first half, the full impact of their recovery won't be felt until 1988. Then, watch for a tsunami of profits rolling out of the East.

The weakness of the dollar against the yen and major European currencies in 1987 accounted for part of the increases, but higher productivity was also a factor. As sales went up, employment dropped by 1%. The continuing strength of the U.S. economy, which still acts as a locomotive for the rest of the world, helped too.

The Japanese dominate the *Gohyakusha Kigyo Banzuke*, as the FORTUNE list is known among Tokyo executives. With 157 companies, Japan has more than double the number of runner-up Britain. Seven newcomers arrived this year, and four Japanese companies that had dropped off returned (see page D31). One new entry is a familiar name, Mitsubishi Motors. It was spun off from shipbuilder Mitsubishi Heavy Industries and became No. 56. Without its auto subsidiary, the former parent dropped 23 places to No. 45.

A spate of mergers and acquisitions in Europe produced some fast-growing additions to the list. Ferruzzi, the Italian food processor, tripled revenues by acquiring French sugar refiner Béghin-Say. The company became No. 253 this year. Who knows where it will land in 1988? Controlled by the aggressive Raul Gardini and his family of Ravenna, Ferruzzi has picked up a 40% stake in Italian chemical giant Montedison (No. 48) and has begun a hostile takeover. In Sweden, Trelleborg, a small manufacturer of rubber and plastic products, bought its way onto the list as No. 290 by acquiring Boliden, which mines zinc, lead, and copper.

As a group, French companies quadrupled profits while the British doubled theirs. The comeback champ was Thorn EMI. The British electronics company restructured its semiconductor business and boosted profits 200-fold. A year earlier it had reported a 99% drop in earnings.

Profits at two European food processors rose as fast as yeast in a hot oven. Saint Louis, a French sugar refiner, had a 14-fold increase after merging with another French food company, Lesieur. Earnings were up seven times at Britain's Dalgety, whose products range from dog food to snacks for kids.

While the rising yen forced Japanese companies to cut costs and raise productivity, it also turned out to be a big boost for Japan's neighbors. Japanese companies rushed to build plants in Singapore, Taiwan, and other Southeast Asian countries whose currencies had appreciated less against the dollar. They also signed up local companies to make components for them. Tatung, a new Taiwanese entry on the 500 list (No. 497), makes electric fans for Japanese companies. Taking advantage of favorable exchange rates, Korean electronics manufacturers Lucky-Goldstar (No. 32) and Samsung (No. 20) are flooding the U.S. with TVs and microwave ovens.

One notable departure from the 500 is Gulf Canada, No. 175 last year. It split into three parts—an oil and gas production company, a pipeline and oil field services unit, and Abitibi Price, a forest products company acquired two years ago. Abitibi Price returns to the list as No. 304.

Global overproduction continued to hammer oil companies around the world. Kuwait Petroleum, No. 27 last year, plunged to No. 53. Sales of Asian oil and gas producers, including Japan's Idemitsu Kosan, Mitsubishi Oil, and Malaysia's Petroliam Nasional Berhad, also fell sharply.

The best performance of all companies on the list belongs to Noranda, a Canadian mining and forest products company. A rebound in prices plus Noranda's takeover of rival MacMillan Bloedel (No. 311 in 1986) resulted in a 115% increase in sales and a 730% rise in net income.

Reflecting the improved productivity of the world's industrials, 17 fewer companies lost money in 1987 than the year before, but there still were losers—48 of them. The biggest was Siderbrás, the Brazilian steelmaker. Its loss: $4.4 billion. Rampaging triple-digit inflation partly accounts for the big number. A merger between two troubled French steel companies, Usinor and Sacilor, produced the runner-up. Usinor-Sacilor (No. 44) lost $970 million. British Coal is still in the pits. Losing money remains an annual ritual for the government-owned company. It reported losses of $430 million, its ninth losing year in a row. Japan's comeback did not extend to all its smokestack industries. Steelmakers Nippon Kokan, Kobe Steel, Nippon Steel, and Kawasaki Steel, and shipbuilders Ishikawajima-Harima, Sumitomo, and Kawasaki Heavy Industries all lost money.

– Frederick Hiroshi Katayama and William Bellis

RANK BY SALES 1987	1986	COMPANY	COUNTRY	SALES $ Millions	NET INCOME $ Millions	Rank	ASSETS $ Millions	Rank	STOCKHOLDERS' EQUITY $ Millions	Rank	EMPLOYEES Number	Rank	INDUSTRY CODE ✓
1	1	**ROYAL DUTCH/SHELL GROUP**	BRITAIN/NETH.	78,319.3	4,725.8	1	87,231.3	1	43,330.8	1	136,000	26	29
2	2	**BRITISH PETROLEUM**	BRITAIN	45,205.9	2,280.1	2	50,363.7	2	20,295.2	3	126,020	34	29
3	4	**TOYOTA MOTOR**[1]	JAPAN	41,455.0	1,699.6	5	33,180.1	7	20,743.1	2	84,207	53	40
4	3	**IRI**[2,3]	ITALY	41,270.0	146.5	161	N.A.		N.A.		422,000	2	33
5	5	**DAIMLER-BENZ**	W. GERMANY	37,535.5	970.2	13	29,626.9	11	5,983.6	26	326,288	5	40
6	8	**VOLKSWAGEN**[4]	W. GERMANY	30,392.7[2]	242.1	96	28,050.1	14	6,559.2	23	260,458	8	40
7	9	**HITACHI**[5]	JAPAN	30,332.2	617.3	32	36,573.5	5	12,534.1	7	161,325	17	36
8	15	**FIAT**	ITALY	29,642.8	1,830.2	3	40,730.2	4	9,837.9	11	270,578	7	40
9	13	**SIEMENS**[12]	W. GERMANY	27,462.9	649.6	29	29,783.0	10	8,428.5	16	359,000	3	36
10	6	**MATSUSHITA ELECTRIC INDUSTRIAL**[5]	JAPAN	27,325.7[7]	862.4[7]	17	28,613.1	13	15,188.7	5	134,764	27	36
11	7	**UNILEVER**	BRITAIN/NETHERLANDS	27,128.8	1,278.6	7	18,858.1	28	5,744.8	28	294,000	6	20
12	11	**PHILIPS' GLOEILAMPENFABRIEKEN**	NETH.	26,021.2	316.9	66	26,970.0	15	8,120.5	18	336,672	4	36
13	14	**NISSAN MOTOR**[5]	JAPAN	25,650.5	123.9	178	25,629.4	16	9,328.8	13	105,443	41	40
14	18	**RENAULT**[2]	FRANCE	24,539.7	613.7	33	19,057.2	25	(1,074.7)	496	188,936	11	40
15	10	**ENI**[2,4]	ITALY	24,242.5	483.6	42	43,716.4	3	8,534.5	15	119,152	38	29
16	12	**NESTLÉ**[4]	SWITZERLAND	23,625.9	1,224.8	10	19,774.1	21	9,550.1	12	163,030	16	20
17	17	**BASF**	W. GERMANY	22,383.7[4]	584.7	34	18,965.6	27	7,541.6	20	133,759	28	28
18	36	**CGE (CIE GÉNÉRALE D'ÉLECTRICITÉ)**	FRANCE	21,204.3	304.8	69	32,107.0	9	3,106.4	65	219,460	9	36
19	20	**ELF AQUITAINE**[2]	FRANCE	21,186.4	690.2	27	28,830.5	12	9,989.4	10	73,000	63	29
20	21	**SAMSUNG**	SOUTH KOREA	21,053.5	249.3	90	14,558.7	39	1,727.9	140	160,596	20	36
21	16	**BAYER**	W. GERMANY	20,662.2	833.3	18	20,469.2	20	8,629.4	14	164,400	14	28
22	19	**HOECHST**	W. GERMANY	20,558.1	766.6	22	18,418.0	29	5,537.3	29	167,781	13	28
23	24	**TOSHIBA**[5]	JAPAN	20,378.1	213.8	114	22,543.3	18	4,070.0	47	121,000	37	36
24	23	**PEUGEOT**[4]	FRANCE	19,658.2	1,116.1	12	14,462.7	40	3,852.9	52	160,600	19	40
25	25	**IMPERIAL CHEMICAL INDUSTRIES**	BRITAIN	18,232.8	1,245.8	8	16,572.3	32	6,497.3	25	127,800	32	28
26	34	**HONDA MOTOR**[6]	JAPAN	17,237.7	516.2	39	11,055.6	59	4,912.7	34	57,130	80	40
27	26	**PETROBRÁS (PETRÓLEO BRASILEIRO)**[2]	BRAZIL	15,640.5	171.5	143	15,460.3	36	7,640.1	19	67,909	68	29
28	42	**NEC**[5]	JAPAN	15,325.1	94.0	221	18,986.1	26	3,530.1	57	101,227	42	36
29	33	**NIPPON STEEL**[5]	JAPAN	14,639.8	(69.7)	473	24,707.1	17	4,510.7	40	69,269	66	33
30	35	**VOLVO**	SWEDEN	14,576.0	730.4	25	13,756.0	44	4,117.3	46	75,340	59	40
31	28	**TOTAL**	FRANCE	14,487.7	242.2	95	13,609.2	47	4,371.1	43	34,110	136	29
32	37	**LUCKY-GOLDSTAR**	SOUTH KOREA	14,422.3	180.7	132	10,268.5	65	1,935.0	120	88,403	48	36
33	29	**THYSSEN**[6]	W. GERMANY	14,177.3	151.3	157	8,752.2	79	1,876.4	128	121,533	36	33
34	45	**ROBERT BOSCH**	W. GERMANY	14,110.0[4]	440.9[4]	49	11,574.6[4]	56	3,373.9[4]	60	160,783	18	40
35	39	**DAEWOO**	SOUTH KOREA	13,437.9	36.8	336	19,680.8	22	1,801.3	134	94,888	43	36
36	40	**PEMEX (PETRÓLEOS MEXICANOS)**[2,3,9]	MEXICO	13,130.4	2.5	446	34,633.6	6	16,978.5	4	178,745	12	29
37	38	**SAINT-GOBAIN**	FRANCE	13,123.7	461.2	46	14,902.3	37	2,774.1	77	131,000	30	32
38	48	**MITSUBISHI ELECTRIC**[5]	JAPAN	12,980.5	66.3	268	13,342.8	48	3,476.8	58	73,536	62	36
39	•	**INI**[2]	SPAIN	12,734.5	(344.9)	492	32,329.6	8	8,341.9	17	163,821	15	33
40	31	**GENERAL MOTORS OF CANADA**[10]	CANADA	12,732.4	3.8	445	4,550.5	166	1,874.5	129	44,749	103	40
41	32	**BAT INDUSTRIES**	BRITAIN	12,330.1	1,231.0	9	16,063.1	34	7,442.2	21	154,164	22	21
42	47	**RUHRKOHLE**	W. GERMANY	11,274.1	10.5	434	11,841.1	54	925.3	232	127,213	33	10
43	58	**FUJITSU**[5]	JAPAN	11,194.2	132.3	171	13,716.3	45	4,670.5	37	89,293	47	44
44	118	**USINOR-SACILOR**[2,4,50]	FRANCE	11,165.0	(969.5)	496	13,657.8	46	(135.3)	493	90,082	46	33
45	22	**MITSUBISHI HEAVY INDUSTRIES**[5]	JAPAN	11,157.3	170.2	145	19,370.5	23	3,659.4	55	58,200	78	45
46	46	**MAZDA MOTOR**[12]	JAPAN	11,057.5	29.1	367	7,888.4	89	2,250.9	98	28,285	175	40
47	30	**NIPPON OIL**[5]	JAPAN	11,041.0	68.1	260	9,552.8	70	2,628.8	82	11,140	352	29
48	52	**MONTEDISON**	ITALY	10,636.2	315.4	67	19,168.1	24	2,971.6	70	66,785	70	28
49	60	**ELECTROLUX**	SWEDEN	10,623.2	288.8	75	8,484.7	82	1,956.9	116	140,500	24	36
50	51	**CIBA-GEIGY**	SWITZERLAND	10,568.3	737.4	24	17,426.6	31	11,158.5	8	86,109	50	28

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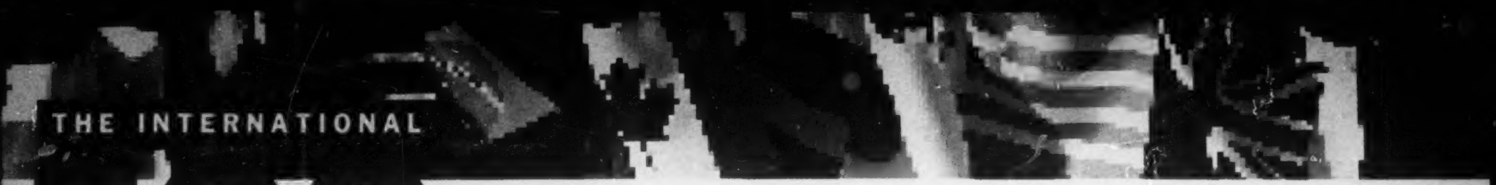

THE INTERNATIONAL 500

RANK BY SALES 1987	1986	COMPANY	COUNTRY	SALES $ Millions	NET INCOME $ Millions	Rank	ASSETS $ Millions	Rank	STOCKHOLDERS' EQUITY $ Millions	Rank	EMPLOYEES Number	Rank	INDUSTRY CODE ✓
51	43	FORD MOTOR OF CANADA[10]	CANADA	10,539.8	63.0	277	2,786.0	270	880.3	249	27,200	183	40
52	67	BMW (BAYERISCHE MOTOREN)	W. GER.	10,181.9	209.3	116	6,572.6	119	2,094.9	106	55,769	81	40
53	27	KUWAIT PETROLEUM[1,2]	KUWAIT	10,107.0	246.5	92	20,840.0	19	14,499.1	6	15,552	291	29
54	50	THOMSON[2]	FRANCE	9,977.6	176.8	135	15,560.1	35	1,427.6	159	86,000	51	36
55	71	ADAM OPEL	W. GERMANY	9,561.1[10]	266.7	83	3,846.5	198	972.6	221	55,282	82	40
56	•	MITSUBISHI MOTORS[5]	JAPAN	9,523.3[9]	90.2[9]	228	7,620.0[9]	92	979.4[9]	220	25,409	194	40
57	57	FORD-WERKE	W. GERMANY	9,466.3[10]	450.5	48	4,805.1	157	1,228.3	180	47,104	96	40
58	59	RHÔNE-POULENC[2]	FRANCE	9,342.6	366.8	59	11,274.2	58	3,173.6	64	82,500	54	28
59	54	MANNESMANN	W. GERMANY	9,265.1	119.2	184	8,565.4	80	2,286.8	96	122,298	35	45
60	41	CANADIAN PACIFIC	CANADA	9,206.5	623.1	31	13,844.6	43	4,969.6	33	85,400	52	33
61	79	SHOWA SHELL SEKIYU	JAPAN	8,989.7	49.9	303	6,796.3	111	461.2	370	2,578	485	29
62	94	HANSON TRUST[6]	BRITAIN	8,890.4	891.1	15	10,358.1	64	3,053.0	67	88,000	49	20
63	53	INDIAN OIL[2,5]	INDIA	8,629.0	335.6	63	3,179.9	237	1,043.0	209	32,604	144	29
64	55	PETROFINA	BELGIUM	8,583.2	471.9	44	9,706.4	66	3,265.5	62	22,100	222	29
65	76	FORD MOTOR[10]	BRITAIN	8,541.9	355.7	60	8,281.4	86	2,055.7	109	47,000	97	40
66	74	STATOIL[2]	NORWAY	8,337.5	(227.5)	489	9,042.1	76	473.3	366	10,627	362	29
67	49	PETRÓLEOS DE VENEZUELA[2]	VENEZUELA	8,290.5	1,511.7	6	12,336.7	51	10,096.1	9	44,203	105	29
68	75	ASEA	SWEDEN	8,235.0	193.9	122	11,396.2	57	1,835.4	132	72,868	64	45
69	63	NORSK HYDRO[2]	NORWAY	8,083.5	271.4	81	10,755.5	62	1,856.6	130	39,139	123	28
70	70	SANYO ELECTRIC[14]	JAPAN	7,983.7	(118.9)	482	11,735.4	55	4,718.1	36	40,590	118	36
71	61	SONY[5]	JAPAN	7,956.4[7]	156.5[7]	155	9,687.2	67	4,179.3	45	47,583	94	36
72	64	FRIED. KRUPP	W. GERMANY	7,846.4	13.4	426	6,631.4	117	1,027.7	212	56,205	81	33
73	65	GEC (GENERAL ELECTRIC CO.)[5]	BRITAIN	7,830.0	649.1	30	8,876.6	78	4,651.6	38	157,000	21	36
74	73	MICHELIN	FRANCE	7,808.2	405.1	55	10,497.5	63	2,231.2	100	117,000	39	30
75	72	GRAND METROPOLITAN[4]	BRITAIN	7,741.5	718.9	26	7,436.7	97	2,822.4	75	129,436	31	49
76	77	AKZO GROUP	NETHERLANDS	7,668.4	465.0	45	6,686.0	116	2,157.1	103	67,400	69	28
77	69	DALGETY[4]	BRITAIN	7,631.0	117.6	188	1,945.0	354	546.7	331	23,966	207	20
78	83	BARLOW RAND[4]	SOUTH AFRICA	7,617.9	222.1	108	5,240.9	148	1,094.3	201	140,445	25	20
79	44	IDEMITSU KOSAN[9]	JAPAN	7,596.3[9]	5.2[9]	442	8,544.2[9]	81	280.1[9]	435	5,792[9]	434	29
80	111	MAN[1]	W. GERMANY	7,438.2	68.2	258	6,611.7	118	1,175.9	188	52,229	85	45
81	100	IBM JAPAN	JAPAN	7,333.4[10]	513.6	40	5,357.7	144	2,389.9	89	20,210	234	44
82	81	NIPPON KOKAN[5,16]	JAPAN	7,325.2	(129.4)	483	17,719.1	30	1,609.5	147	35,146	130	33
83	78	ISUZU MOTORS[12]	JAPAN	7,179.9	46.7	311	6,125.6	129	903.9	239	24,609	203	40
84	•	REPSOL[2,4]	SPAIN	7,146.2	383.5	57	7,000.8	105	2,871.4	72	18,910	246	29
85	137	METALLGESELLSCHAFT[6]	W. GERMANY	7,117.5	42.0	317	3,861.3	197	734.7	278	24,813	201	33
86	86	NIPPONDENSO	JAPAN	7,102.2	215.9	113	7,382.9	98	3,825.5	54	45,572	100	40
87	93	SHARP[5]	JAPAN	6,994.4	128.8	174	9,612.5	68	2,677.8	79	29,346	164	36
88	56	BROWN BOVERI	SWITZERLAND	6,951.5	112.6	192	11,927.6	53	3,418.8	59	93,900	44	36
89	85	BTR	BRITAIN	6,801.4	785.0	20	6,163.1	127	2,431.8	87	81,800	55	45
90	82	SUNKYONG	SOUTH KOREA	6,781.6	91.0	227	3,521.1	212	784.6	266	17,985	258	29
91	98	CANON	JAPAN	6,753.1	91.6	225	9,351.6	71	3,061.4	66	37,521	126	44
92	62	BRITISH COAL[2,5]	BRITAIN	6,737.2	(429.8)	495	10,819.9	60	(57.9)	492	141,529	23	10
93	88	VEBA OEL	W. GERMANY	6,716.1[4]	(11.1)	455	2,937.4	255	640.3	307	17,028	266	29
94	128	BRITISH AEROSPACE	BRITAIN	6,679.7	(180.3)	487	8,019.3	88	1,921.8	122	93,038	45	41
95	108	JAPAN TOBACCO[2]	JAPAN	6,674.6[9]	303.3[9]	71	12,312.4[9]	52	6,502.9[9]	24	29,600[9]	162	21
96	90	KOBE STEEL[5]	JAPAN	6,645.8	(74.6)	474	14,068.5	42	1,218.7	182	30,033	157	33
97	87	ALCAN ALUMINIUM	CANADA	6,546.0	433.0	50	7,660.0	91	3,970.0	49	63,000	73	33
98	112	SAAB-SCANIA	SWEDEN	6,523.0	227.8	103	6,374.4	123	1,155.1	191	50,373	89	40
99	106	PECHINEY[2]	FRANCE	6,479.1	121.3	181	6,972.9	106	1,392.9	162	46,200	98	33
100	91	IBM DEUTSCHLAND	W. GERMANY	6,425.5[10]	303.4	70	5,672.2	139	2,240.9	99	30,544	155	44

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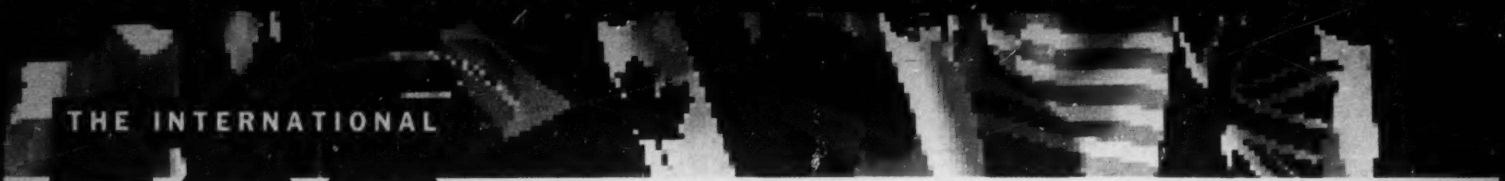

THE INTERNATIONAL 500

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101	109	NESTE[2]	FINLAND	6,392.8	244.4	93	5,695.6	138	2,387.5	90	10,980	356	29
102	101	ESSO UK[10]	BRITAIN	6,318.6	864.5	16	8,191.3	87	1,675.1	143	4,840	454	29
103	124	DEGUSSA[6]	W. GERMANY	6,257.9	64.3	275	3,278.7	231	692.4	293	30,789	153	33
104	89	KAWASAKI STEEL[5]	JAPAN	6,252.0	(42.7)	464	12,712.4	49	2,299.8	94	30,817	152	33
105	97	IBM FRANCE[4,10]	FRANCE	6,241.1	373.1	58	4,777.6	159	1,937.5	119	21,716	225	44
106	95	MITSUBISHI CHEMICAL INDUSTRIES[17,18]	JAPAN	6,189.1	92.3	224	7,441.3	96	1,080.0	203	19,010	243	28
107	119	BSN[4]	FRANCE	6,181.2	257.9	87	6,446.9	122	2,599.5	83	41,285	115	20
108	•	ELDERS IXL[1]	AUSTRALIA	6,169.3	231.9	101	6,966.6	108	2,208.2	101	25,845	193	49
109	121	TAIYO FISHERY[17]	JAPAN	6,161.7	.8	448	2,868.2	263	213.3	458	8,251	390	20
110	126	SANDOZ	SWITZERLAND	6,019.6	420.3	52	7,505.3	95	4,400.3	41	43,996	108	42
111	120	SOLVAY	BELGIUM	6,013.7	289.8	74	6,036.8	131	1,894.8	125	44,957	101	28
112	92	SUMITOMO METAL INDUSTRIES[5]	JAPAN	5,991.9	(88.8)	479	14,886.6	38	2,190.0	102	30,933	150	33
113	110	ASAHI GLASS	JAPAN	5,963.7	239.7	99	7,689.1	90	3,245.2	63	16,570	281	28
114	104	CHINESE PETROLEUM[2]	TAIWAN	5,861.7[9]	1,772.8[9]	4	7,318.9[9]	100	5,344.0[9]	30	20,647[9]	233	29
115	84	BROKEN HILL PROPRIETARY[19]	AUSTRALIA	5,790.9	569.3	35	12,477.5	50	5,281.6	31	61,000	75	10
116	136	ISHIKAWAJIMA-HARIMA HEAVY IND.[5]	JAPAN	5,737.8	(145.8)	484	9,220.8	74	803.7	259	28,828	172	45
117	176	TÜRKIYE PETROLLERI[2]	TURKEY	5,720.0	486.9	41	3,910.5	194	1,379.7	164	18,846	247	29
118	130	IBM UNITED KINGDOM HOLDINGS[10]	BRITAIN	5,709.3	516.3	38	3,487.2	216	1,640.8	145	18,026	256	44
119	114	OLIVETTI	ITALY	5,688.3	310.0	68	9,271.6	73	2,828.8	74	58,087	79	44
120	123	BRIDGESTONE	JAPAN	5,672.5	247.7	91	7,063.7	103	2,848.3	73	34,061	137	30
121	127	ASAHI CHEMICAL INDUSTRY[5]	JAPAN	5,658.6	129.7	173	6,126.7	128	1,664.9	144	22,126	220	22
122	122	PIRELLI	ITALY/SWITZERLAND	5,615.0	175.0	138	6,045.0	130	2,095.0	105	66,323	71	30
123	134	SUMITOMO CHEMICAL	JAPAN	5,576.0	113.8	191	7,507.5	94	1,263.5	175	12,310	334	28
124	115	RTZ[4]	BRITAIN	5,568.5	458.8	47	7,593.6	93	3,027.6	68	51,038	88	10
125	215	NORANDA	CANADA	5,470.4	259.0	86	7,380.2	99	2,815.4	76	44,000	107	33
126	96	CHRYSLER CANADA[10]	CANADA	5,464.8	74.8	245	2,268.4	318	638.7	309	15,677	290	40
127	132	FELDMÜHLE NOBEL	W. GERMANY	5,452.8	80.0	236	4,274.0	176	1,176.3	187	42,924	110	26
128	146	DAI NIPPON PRINTING[19]	JAPAN	5,410.9	181.2	134	4,586.3	165	2,424.7	88	13,854	308	27
129	145	SNOW BRAND MILK PRODUCTS[5]	JAPAN	5,389.5	24.0	386	2,470.4	298	432.8	377	14,734	297	20
130	99	ESSO (GERMANY)	W. GERMANY	5,362.8[10]	34.8	347	2,568.3	293	916.8	235	2,864	482	29
131	154	SUZUKI MOTOR[6]	JAPAN	5,340.0	59.6	284	3,393.1	221	745.2	274	12,857	323	40
132	105	IMPERIAL OIL[10]	CANADA	5,308.8	561.8	36	7,289.6	101	4,280.9	44	11,627	344	29
133	139	FUJI PHOTO FILM[13]	JAPAN	5,292.3	480.6	43	7,269.2	102	4,382.7	42	17,703	259	38
134	116	AÉROSPATIALE[2,4]	FRANCE	5,217.2	22.6	391	9,567.5	69	897.0	243	41,216	116	41
135	135	ROCHE/SAPAC	SWITZERLAND	5,165.4	323.1	64	10,792.1	61	6,845.1	22	47,498	95	42
136	102	BRITISH STEEL[2,5]	BRITAIN	5,164.5	265.6	84	6,879.6	110	4,875.6	35	52,000	86	33
137	143	HENKEL	W. GERMANY	5,148.9	151.4	156	4,315.5	174	1,605.1	148	34,731	133	28
138	125	KOMATSU	JAPAN	5,120.6	65.7	269	8,474.0	83	3,287.5	61	22,871	215	45
139	131	L.M. ERICSSON TELEPHONE	SWEDEN	5,104.4	115.8	190	5,743.2	136	1,288.7	172	70,893	65	36
140	107	ROVER GROUP[2]	BRITAIN	5,075.6	(43.9)	466	3,291.1	230	629.4	313	44,790	102	40
141	222	HILLSDOWN HOLDINGS	BRITAIN	4,980.9	144.6	164	3,026.7	249	722.9	283	44,102	106	20
142	150	KAWASAKI HEAVY INDUSTRIES[5]	JAPAN	4,892.3	(87.1)	478	6,765.4	112	496.7	361	23,107	214	37
143	159	TOPPAN PRINTING[19]	JAPAN	4,888.2	119.5	182	3,963.4	187	1,767.3	138	14,520	300	27
144	•	CEA-INDUSTRIE[2,4]	FRANCE	4,879.6	299.2	72	16,478.2	33	2,041.0	111	30,700	154	28
145	149	SCHNEIDER	FRANCE	4,873.3	53.9	293	9,331.7	72	516.8	346	60,072	77	45
146	133	NORTHERN TELECOM	CANADA	4,853.5	347.2	62	4,869.0	156	2,560.5	85	48,778	91	36
147	138	YPF (YACIMIENTOS PETRÓLIFEROS)[2,3]	ARGEN	4,774.7	127.3	175	8,372.3	84	N.A.		34,870	132	29
148	129	THORN EMI[5]	BRITAIN	4,752.6	111.8	195	3,166.1	238	1,012.6	215	74,321	61	36
149	155	KOC HOLDING	TURKEY	4,738.0	166.9	147	1,630.7	392	263.2	442	35,530	129	40
150	172	BERTELSMANN[1]	W. GERMANY	4,735.8	32.1	355	3,562.0	211	540.4	336	42,000	113	27

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151	205	**VIAG**	W. GERMANY	4,697.5[4]	98.1	213	5,940.7	134	1,368.4	165	32,733	143	33
152	157	**MATSUSHITA ELECTRIC WORKS**[14]	JAPAN	4,593.4	124.4	177	4,359.5	173	1,955.5	117	17,243	264	45
153	152	**SSANGYONG**	SOUTH KOREA	4,582.7	74.5	246	4,741.7	162	862.0	251	16,870	273	29
154	167	**SUMITOMO ELECTRIC INDUSTRIES**[5]	JAPAN	4,577.2	103.1	206	4,648.9	164	1,470.7	154	24,498	204	34
155	153	**ALLIED-LYONS**[26]	BRITAIN	4,549.9	286.4	77	6,741.7	113	2,637.9	81	77,549	58	49
156	158	**TORAY INDUSTRIES**[5]	JAPAN	4,445.8	97.1	216	5,615.5	140	1,699.2	142	26,732	185	28
157	160	**FUJI HEAVY INDUSTRIES**[5]	JAPAN	4,444.6	99.4	212	3,790.6	203	1,202.9	184	15,711	289	40
158	66	**DSM**[2,4]	NETHERLANDS	4,431.6	218.1	111	4,542.3	167	1,782.1	135	27,920	179	28
159	142	**TOA NENRYO KOGYO**	JAPAN	4,409.3	264.2	85	4,982.9	153	2,687.7	78	2,322	487	29
160	103	**SCHLUMBERGER**	NETHERLANDS ANTILLES	4,402.0	352.6	61	6,741.0	114	3,835.9	53	50,000	90	38
161	147	**SALZGITTER**[6,15]	W. GERMANY	4,188.8	37.5	332	4,404.7	171	799.8	264	37,542	125	33
162	117	**NIPPON MINING**[5]	JAPAN	4,147.0	18.5	410	4,746.6	161	630.2	312	7,221	405	29
163	209	**MITSUBISHI METAL**[5]	JAPAN	4,120.3	(3.4)	450	4,507.2	168	342.4	414	11,541	345	33
164	174	**KUBOTA**[21]	JAPAN	4,109.8	79.2	239	4,977.1	154	1,951.8	118	18,000	257	45
165	185	**JACOBS SUCHARD**	SWITZERLAND	4,092.0	177.9	133	2,431.8	300	898.9	241	16,503	282	20
166	163	**HOESCH**	W. GERMANY	4,082.2	27.3	372	4,075.3	182	1,037.1	210	32,800	142	33
167	168	**BICC**	BRITAIN	4,080.0	104.9	200	2,397.1	304	560.1	326	44,400	104	45
168	156	**BEECHAM GROUP**[5]	BRITAIN	4,073.8	297.5	73	3,915.0	193	2,032.9	112	40,900	117	42
169	171	**BASS**[6]	BRITAIN	4,026.9	407.7	54	5,968.7	133	3,954.1	51	79,348	57	49
170	151	**COCKERILL SAMBRE**[2,4]	BELGIUM	3,959.2	(50.3)	467	4,434.7	169	845.2	254	26,672	187	33
171	161	**OIL & NATURAL GAS COMMISSION**[2,5]	INDIA	3,939.3[9]	1,162.0[9]	11	8,916.3[9]	77	4,569.4[9]	39	43,349[9]	109	29
172	189	**DAIHATSU MOTOR**[1]	JAPAN	3,930.5	26.7	374	2,708.1	275	609.2	317	18,846	248	40
173	179	**L'AIR LIQUIDE**	FRANCE	3,902.9	231.4	102	5,204.1	149	1,920.5	123	26,000	192	28
174	184	**SHOWA DENKO**	JAPAN	3,778.7	(14.5)	456	5,587.4	141	312.4	427	8,898	377	28
175	164	**PETRO-CANADA**[2]	CANADA	3,756.9	160.6	152	6,501.3	120	3,617.1	56	7,204	407	29
176	•	**SIDERBRÁS**[2]	BRAZIL	3,742.2	(4,362.1)	497	14,113.1	41	(386.8)	495	79,544	56	33
177	198	**RICOH**[5]	JAPAN	3,702.7	68.5	256	3,862.4	196	1,462.5	156	28,000	178	44
178	166	**HACIÖMER SABANCI HOLDING**	TURKEY	3,681.4	225.2	105	3,957.8	188	394.1	395	29,094	167	22
179	214	**TOYO SEIKAN**[5]	JAPAN	3,576.3	111.8	194	2,878.8	262	1,243.5	177	6,050	430	34
180	223	**TAKEDA CHEMICAL**[5]	JAPAN	3,573.3	176.8	136	5,244.9	147	2,573.2	84	13,599	313	42
181	182	**KOREA EXPLOSIVES**	SOUTH KOREA	3,563.8	33.9	350	3,505.9	214	1,011.3	216	18,291	252	28
182	186	**FURUKAWA ELECTRIC**[5]	JAPAN	3,548.3	73.0	248	3,957.3	189	725.6	282	14,078	306	33
183	219	**TARMAC**	BRITAIN	3,545.8	271.8	79	3,244.7	234	1,340.0	169	28,031	177	32
184	226	**KIRIN BREWERY**[17]	JAPAN	3,541.0	205.1	119	4,786.2	158	1,977.9	115	10,450	363	49
185	221	**INTERNATIONAL THOMSON ORG.**	CANADA	3,537.0	209.0	117	3,419.0	220	1,188.0	186	23,200	212	27
186	216	**POHANG IRON & STEEL**	SOUTH KOREA	3,533.2[9]	85.1[9]	230	6,457.1[9]	121	2,062.2[9]	107	19,329[9]	242	33
187	199	**NEWS CORPORATION**[1]	AUSTRALIA	3,527.6	548.2	37	9,116.6	75	4,029.0	48	26,700	186	27
188	•	**CRA**	AUSTRALIA	3,522.7	226.0	104	5,859.4	135	2,282.2	97	25,011	197	10
189	224	**KANEBO**[20]	JAPAN	3,510.5	(43.1)	465	4,181.4	181	99.6	481	27,051	184	22
190	192	**RANK XEROX**[2,4,12]	BRITAIN	3,499.7	185.7	127	3,813.6	200	1,847.2	131	29,969	158	44
191	261	**HYUNDAI MOTOR**	SOUTH KOREA	3,437.4	72.3	249	2,335.2	313	390.4	397	29,000	169	40
192	180	**GUINNESS**[6]	BRITAIN	3,422.6	804.8	19	5,478.8	141	1,929.4	121	20,664	232	49
193	169	**ALUSUISSE (SWISS ALUMINIUM)**	SWITZERLAND	3,399.6	173.0	141	4,213.1	178	886.4	246	23,595	210	33
194	190	**STC**	BRITAIN	3,387.6	221.6	109	2,555.9	294	1,213.8	183	34,904	131	36
195	177	**COURTAULDS**[5]	BRITAIN	3,375.2	199.8	121	2,482.2	297	1,060.0	205	65,400	72	22
196	204	**ROLLS-ROYCE**	BRITAIN	3,375.1	219.7	110	2,912.0	258	1,612.5	146	42,000	114	41
197	236	**FUJI ELECTRIC**[5]	JAPAN	3,375.1	27.4	370	3,945.9	191	624.6	314	18,275	253	36
198	181	**CDF CHIMIE**[2]	FRANCE	3,372.3	167.0	146	2,853.6	264	477.7	364	16,641	277	28
199	207	**L'ORÉAL**	FRANCE	3,342.9	175.8	137	3,164.7	239	1,350.7	168	27,600	181	43
200	196	**CADBURY SCHWEPPES**	BRITAIN	3,329.2	181.5	130	2,638.5	282	899.1	240	28,130	177	20

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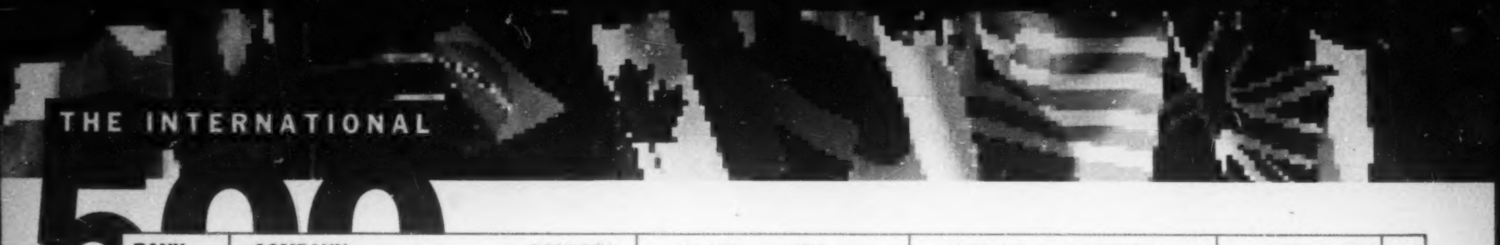

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RANK BY SALES 1987	1986	COMPANY	COUNTRY	SALES $ Millions	NET INCOME $ Millions	Rank	ASSETS $ Millions	Rank	STOCKHOLDERS' EQUITY $ Millions	Rank	EMPLOYEES Number	Rank	INDUSTRY CODE ✓
201	202	TEIJIN[5]	JAPAN	3,305.1	97.4	215	4,292.6	175	1,221.7	181	11,254	350	28
202	•	MCDERMOTT INTERNATIONAL[5]	PANAMA	3,289.3	(102.4)	481	4,383.3	172	1,035.3	211	29,000	170	45
203	•	ASSOCIATED BRITISH FOODS[5]	BRITAIN	3,285.7	673.6	28	3,135.4	241	2,375.3	91	54,114	84	20
204	227	OJI PAPER[5]	JAPAN	3,272.1	76.0	243	3,624.6	206	1,044.4	208	5,536	445	26
205	235	NIPPON SUISAN[5]	JAPAN	3,261.6	14.7	423	2,019.5	347	473.9	365	6,154	428	20
206	195	HYOSUNG	SOUTH KOREA	3,257.8	58.8	288	2,276.2	317	678.3	297	24,000	205	22
207	306	STORA KOPPARBERGS BERGSLAGS	SWEDEN	3,226.5	59.6	285	5,741.3	137	1,144.6	193	21,530	226	26
208	•	PETRONAS[2,5]	MALAYSIA	3,214.5	910.0	14	8,307.5	85	5,791.5	27	7,054	412	29
209	239	NOKIA	FINLAND	3,178.6	191.4	124	3,942.0	192	1,438.1	158	29,300	165	36
210	140	MITSUBISHI OIL[5]	JAPAN	3,178.2	52.2	298	3,576.6	210	171.1	469	3,011	481	29
211	229	LAFARGE COPPÉE	FRANCE	3,174.1	254.7	88	3,993.1	184	1,385.1	163	20,104	235	32
212	201	UBE INDUSTRIES[5]	JAPAN	3,153.1	(33.0)	461	5,333.4	145	188.5	463	14,676	298	28
213	308	PILKINGTON BROTHERS[5]	BRITAIN	3,138.7	185.0	128	3,601.0	208	1,368.0	166	54,600	83	32
214	173	GKN	BRITAIN	3,115.5	101.5	208	2,851.6	265	1,155.6	190	38,300	124	40
215	217	SULZER BROTHERS	SWITZERLAND	3,108.0	50.7	302	5,361.4	143	2,350.0	92	31,662	148	45
216	194	SAARBERGWERKE[2]	W. GERMANY	3,095.7	(164.4)	486	2,982.6	252	167.4	470	28,761	173	29
217	210	DE BEERS CONSOLIDATED MINES	S. AFRICA	3,091.9	742.1	23	6,016.1	132	5,012.7	32	22,143	218	10
218	193	SKF	SWEDEN	3,088.5	45.4	313	4,023.3	183	1,574.6	151	45,685	99	34
219	188	BOC GROUP[4]	BRITAIN	3,051.9	252.1	89	3,694.8	204	1,581.4	150	37,488	127	28
220	269	AISIN SEIKI[5]	JAPAN	3,049.3	67.2	265	2,168.5	328	884.9	248	11,982	339	40
221	218	CEPSA	SPAIN	3,023.6	65.2	271	1,702.5	384	722.0	285	3,591	474	29
222	243	AJINOMOTO[5]	JAPAN	3,010.5	88.7	229	3,897.4	195	1,910.5	124	10,225	365	20
223	213	BULL[2]	FRANCE	3,006.3	37.5	333	3,331.7	225	908.0	237	26,337	189	44
224	191	UNITED BISCUITS (HOLDINGS)[4]	BRITAIN	3,003.7	148.3	158	1,984.6	351	923.2	233	39,294	122	20
225	187	HYUNDAI HEAVY INDUSTRIES	SOUTH KOREA	2,964.5[4]	19.3	407	3,291.3	229	827.5	257	48,200	92	37
226	237	YAMAHA MOTOR[5]	JAPAN	2,962.4[3]	63.3[3]	276	2,658.5	281	249.2	446	10,140	364	40
227	309	NIPPON MEAT PACKERS[5]	JAPAN	2,944.9	59.3	286	1,691.4	386	673.2	299	12,500	327	20
228	220	COATS VIYELLA[4]	BRITAIN	2,942.0	271.6	80	2,705.8	277	1,296.6	171	68,207	67	22
229	203	UNIGATE[5]	BRITAIN	2,940.4	104.6	201	1,273.7	432	443.4	374	33,688	138	20
230	234	RMC GROUP	BRITAIN	2,932.0	131.6	172	2,185.9	326	744.4	275	20,980	229	32
231	200	REED INTERNATIONAL[5]	BRITAIN	2,910.4	190.1	126	2,354.3	308	1,115.9	198	34,600	134	27
232	289	KAO[5]	JAPAN	2,903.0	79.9	237	2,615.4	284	1,236.9	178	7,000	414	43
233	211	MOBIL OIL (GERMANY)	W. GERMANY	2,899.3[10]	170.8	144	1,304.1	429	402.7	390	2,159	489	29
234	259	FLETCHER CHALLENGE[1]	NEW ZEALAND	2,893.7	190.3	125	4,921.9	155	1,448.2	157	40,000	119	26
235	225	HOOGOVENS GROEP	NETHERLANDS	2,886.5	(37.7)	462	4,746.7	160	875.6	250	29,609	161	33
236	252	TOYOBO[5]	JAPAN	2,882.9[3]	37.8[3]	329	2,795.7	269	536.6	338	14,975	294	28
237	228	NISSAN SHATAI[5]	JAPAN	2,874.8[9]	9.6[9]	438	985.2[9]	463	388.8[9]	399	6,581[9]	421	40
238	268	HACHETTE[4]	FRANCE	2,862.8	56.1	292	2,044.6	343	364.2	407	17,685	260	27
239	253	GALLAHER	BRITAIN	2,862.5	166.3	148	2,570.2	292	1,085.2	202	32,540	145	21
240	277	MATRA[4]	FRANCE	2,859.5	38.2	326	3,815.8	199	273.1	438	1,445	496	41
241	240	HAWKER SIDDELEY GROUP	BRITAIN	2,857.1	139.3	168	2,833.9	266	1,360.4	167	42,700	111	45
242	249	CONTINENTAL[22]	W. GERMANY	2,835.7	77.0	242	3,057.8	247	898.6	242	42,263	112	30
243	278	NIXDORF COMPUTER	W. GERMANY	2,820.7[14]	143.3	166	3,062.2	246	1,885.3	127	29,440	163	44
244	247	ESSO (FRANCE)[10]	FRANCE	2,818.8	34.1	349	1,529.3	400	542.5	333	3,874	470	29
245	265	DAINIPPON INK AND CHEMICALS[5]	JAPAN	2,808.5	40.0	323	3,492.1	215	657.0	304	13,781	311	28
246	292	SEKISUI CHEMICAL[5]	JAPAN	2,802.5	47.3	306	2,596.1	286	744.1	276	8,639	378	28
247	248	JOHN LABATT[20]	CANADA	2,765.9	91.6	226	1,761.3	373	576.5	324	16,200	285	20
248	208	ÖMV[2]	AUSTRIA	2,745.9	25.3	380	3,097.3	244	1,017.4	214	6,440	423	29
249	246	HEINEKEN	NETHERLANDS	2,742.7	141.5	167	3,424.2	219	1,394.7	161	28,418	174	49
250	183	STEEL AUTHORITY OF INDIA[2,5]	INDIA	2,738.4[9]	41.3[9]	319	6,969.1[9]	107	3,015.0[9]	69	205,623[9]	10	33

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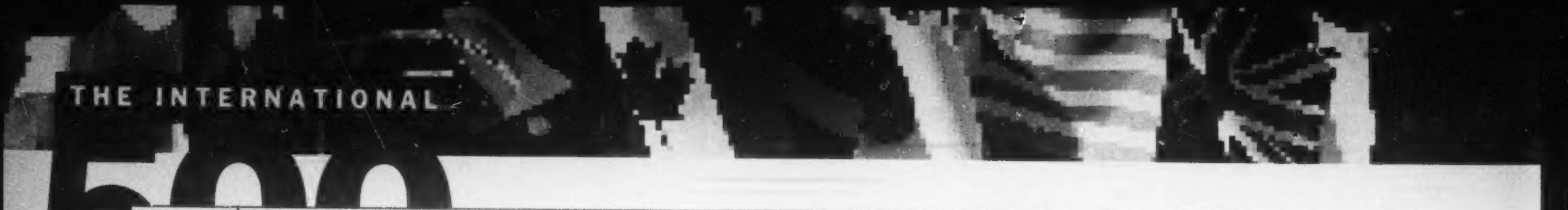

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251	258	VAUXHALL MOTORS[9,10]	BRITAIN	2,734.2	50.8	301	1,484.1	409	(246.7)	494	11,492	347	40
252	244	DEUTSCHE TEXACO	W. GERMANY	2,731.4[10]	51.6	300	1,821.0	367	522.7	343	4,243	466	29
253	•	FERRUZZI AGRICOLA[8]	ITALY	2,730.4	37.5	331	5,088.5	152	1,103.4	200	16,959	272	27
254	144	ESSO ITALIANA[10]	ITALY	2,686.4	(53.3)	468	1403.6	438	117.2	479	2,343	486	29
255	288	KONICA[23,24]	JAPAN	2,683.3	(7.1)	453	3,159.8	240	1,055.4	207	20,000	236	38
256	251	TDK[14]	JAPAN	2,672.6	122.5	179	3,514.7	213	2,000.6	113	17,567	261	36
257	285	JUJO PAPER[5]	JAPAN	2,670.7	65.1	272	3,217.1	235	530.0	339	7,215	406	26
258	281	GLAXO HOLDINGS[14]	BRITAIN	2,655.5	777.9	21	3,803.0	202	2,338.6	93	24,954	198	42
259	233	TATE & LYLE[6]	BRITAIN	2,649.2	108.9	199	1,419.3	416	554.7	328	13,029	321	20
260	212	GENERAL SEKIYU[5]	JAPAN	2,644.5	15.9	421	2,128.1	335	542.9	332	1,760	492	29
261	310	NIPPON GAKKI[5,25]	JAPAN	2,636.9	66.7	267	2,322.1	314	907.2	238	17,185	265	47
262	256	MITSUI TOATSU CHEMICALS[5]	JAPAN	2,616.8	31.5	358	3,463.0	217	194.8	461	10,850	359	28
263	262	SCHERING	W. GERMANY	2,615.3	79.8	238	3,247.2	233	1,233.2	179	23,968	206	28
264	255	DEUTSCHE BABCOCK[6]	W. GERMANY	2,577.7	23.8	387	2,041.3	344	402.4	391	22,130	219	34
265	242	KOOR INDUSTRIES	ISRAEL	2,571.1	(252.0)	490	3,314.7	227	455.0	371	30,300	156	36
266	•	NIPPON LIGHT METAL[5]	JAPAN	2,568.2	(41.4)	463	2,802.0	267	92.3	482	10,038	369	34
267	444	KF INDUSTRI	SWEDEN	2,567.5	22.5	393	1,725.2	378	317.9	424	13,628	312	20
268	241	LUCAS INDUSTRIES[17]	BRITAIN	2,562.3	58.6	290	2,138.3	332	764.8	269	62,572	74	40
269	264	PROCORDIA[2]	SWEDEN	2,550.9	182.9	129	2,672.5	279	894.2	244	28,936	171	21
270	317	OKI ELECTRIC INDUSTRY[5]	JAPAN	2,548.7	13.4	427	3,371.9	223	708.2	289	19,375	240	36
271	257	YAMAZAKI BAKING	JAPAN	2,546.5	67.9	261	1,913.1	357	998.0	217	13,581	314	20
272	238	OERLIKON-BÜHRLE	SWITZERLAND	2,533.5	(77.6)	475	6,346.4	124	2,545.4	86	29,915	159	34
273	254	SNECMA[2]	FRANCE	2,515.9	(94.3)	480	4,661.2	163	338.6	418	25,287	195	41
274	282	HÜLS	W. GERMANY	2,511.6[9]	66.8[9]	266	2,407.5[9]	303	885.6[9]	247	15,516[9]	292	28
275	270	SHISEIDO[14]	JAPAN	2,506.8	60.4	281	3,130.9	242	1,769.5	137	13,802	310	43
276	359	SWEDISH MATCH	SWEDEN	2,502.3	61.0	280	2,076.4	340	417.6	386	34,200	135	32
277	245	AVIONS MARCEL DASSAULT	FRANCE	2,500.4	25.8	377	7,063.4	104	499.6	358	17,306	263	41
278	346	HONSHU PAPER[5]	JAPAN	2,494.0	12.8	428	3,991.1	185	217.3	455	7,437	402	26
279	305	HOLDERBANK FINANCIÈRE GLARIS[4]	SWITZL	2,471.9	118.9	186	6,167.5	126	2,123.0	104	22,395	216	32
280	263	SVENSKA CELLULOSA	SWEDEN	2,470.1	201.2	120	3,388.6	222	1,272.6	174	17,020	267	26
281	267	HINO MOTORS[5]	JAPAN	2,469.7[9]	19.7[9]	405	1,491.3[9]	408	501.8[9]	352	8,476[9]	383	40
282	323	TABACALERA[2]	SPAIN	2,460.9	46.9	309	1,361.2	421	390.0	398	8,476	384	27
283	291	RECKITT & COLMAN	BRITAIN	2,446.6	192.3	123	1,723.7	379	890.2	245	31,800	147	20
284	266	TEXACO LIMITED[10]	BRITAIN	2,440.6	97.8	214	1,564.8	395	680.8	296	3,384	477	29
285	453	SANKYO[5]	JAPAN	2,426.6	65.0	273	2,350.4	310	987.6	218	5,667	440	42
286	295	PIONEER ELECTRONIC[6]	JAPAN	2,423.6	75.2	244	1,995.7	349	1,136.7	196	12,745	324	36
287	299	ROWNTREE	BRITAIN	2,413.9	144.1	165	1,769.6	372	770.6	268	33,120	140	20
288	273	SEAGRAM[17]	CANADA	2,412.2	423.5	51	6,886.5	109	3,955.6	50	14,400	302	49
289	283	ENTREPRISE MINIÈRE ET CHIMIQUE[2]	FRANCE	2,402.6	(9.3)	454	1,637.2	391	153.0	471	13,305	319	10
290	•	TRELLEBORG	SWEDEN	2,397.8	35.3	343	2,715.0	274	214.5	457	21,945	223	33
291	•	HINDUSTAN PETROLEUM[2,5]	INDIA	2,390.2	37.6	330	925.2	469	182.2	466	8,423	385	29
292	319	HITACHI ZOSEN[5]	JAPAN	2,383.9	38.0	328	5,130.7	150	353.9	410	8,366	387	45
293	280	RANKS HOVIS MCDOUGALL[23]	BRITAIN	2,382.5	133.8	170	1,397.8	418	410.8	388	35,686	128	20
294	321	FORD ESPAÑA[10]	SPAIN	2,375.2	224.9	106	1,310.8	427	186.0	464	8,272	389	40
295	329	MEIJI MILK PRODUCTS[5]	JAPAN	2,349.0	17.4	414	1,064.6	454	331.9	420	7,114	409	20
296	275	IBM CANADA[10]	CANADA	2,340.7	174.2	139	1,830.5	366	1,252.9	176	12,147	338	44
297	314	SANYO-KOKUSAKU PULP[5]	JAPAN	2,336.5	31.3	360	2,548.2	295	315.4	426	7,695	398	26
298	279	MITSUBISHI PETROCHEMICAL	JAPAN	2,332.4	69.6	253	3,576.7	209	732.2	279	3,727	472	28
299	334	VALE DO RIO DOCE[34]	BRAZIL	2,324.0	(347.0)	493	6,689.4	115	2,934.8	71	29,124	166	10
300	341	ALPS ELECTRIC[5]	JAPAN	2,312.4	25.8	378	2,547.7	296	850.6	253	12,643	325	36

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301	260	**COAL INDIA**[2,5]	INDIA	2,304.6	(259.7)	491	5,331.3	146	2,669.8	80	673,456	1	10
302	272	**MOORE**	CANADA	2,281.5	146.4	162	1,939.3	355	1,167.7	189	26,480	188	27
303	324	**ZAHNRADFABRIK FRIEDRICHSHAFEN**	W. GER.	2,260.5	15.3	422	2,215.1	324	374.3	405	24,639	202	40
304	•	**ABITIBI-PRICE**	CANADA	2,253.2	94.8	219	1,960.9	353	930.2	230	16,000	287	26
305	307	**NISSHIN STEEL**[5]	JAPAN	2,244.2	27.5	369	3,642.0	205	708.5	288	9,067	376	33
306	250	**CANADA PACKERS**[3]	CANADA	2,243.5	28.1	368	517.1	493	288.9	434	12,500	328	20
307	286	**ROTHMANS INTERNATIONAL**[5]	BRITAIN	2,231.3	147.9	159	2,666.7	280	820.5	258	19,000	244	21
308	•	**LVMH**[19]	FRANCE	2,203.8	223.4	107	3,813.4	201	1,408.2	160	12,311	333	49
309	296	**SUMITOMO METAL MINING**[5]	JAPAN	2,200.9	1.4	447	2,359.0	306	364.0	408	6,640	419	33
310	354	**GENERAL MOTORS ESPAÑA**	SPAIN	2,195.2	81.9	233	1,563.9	396	541.4	335	8,351	388	40
311	343	**NOBEL INDUSTRIES**	SWEDEN	2,193.0	82.1	232	3,043.5	248	323.5	421	18,122	255	28
312	335	**NISSHIN FLOUR MILLING**[5]	JAPAN	2,181.1	34.9	346	1,100.1	452	500.7	354	3,556	475	20
313	298	**DAIDO STEEL**[1]	JAPAN	2,175.8	17.3	415	2,252.8	320	431.2	379	10,944	357	33
314	313	**LION**	JAPAN	2,167.0	35.6	342	1,750.6	376	636.3	311	4,801	457	43
315	301	**BOEHRINGER INGELHEIM**	W. GERMANY	2,154.5	52.8	297	2,902.3	259	1,060.0	206	22,164	217	42
316	300	**POLYSAR**	CANADA	2,142.5	171.6	142	4,188.5	179	1,072.1	204	7,120	408	28
317	287	**PLESSEY**[4,5]	BRITAIN	2,133.4	173.5	140	2,135.1	333	958.7	224	31,044	140	36
318	340	**CODELCO-CHILE**[2,9]	CHILE	2,132.5	267.1	82	4,423.6	170	2,297.3	95	24,838	200	10
319	367	**NICHIREI**[17]	JAPAN	2,118.3	17.8	412	1,063.4	455	290.7	433	4,807	455	20
320	322	**VALEO**	FRANCE	2,118.1	59.9	282	2,226.9	323	589.2	321	25,100	196	40
321	312	**SSAB (SVENSKT STAL)**[10]	SWEDEN	2,107.3	10.1	436	2,134.6	334	551.9	329	14,352	303	33
322	294	**KLÖCKNER-WERKE**[6]	W. GERMANY	2,101.2	(208.7)	488	2,571.0	291	279.7	436	23,187	213	33
323	337	**SHIN-ETSU CHEMICAL**[19]	JAPAN	2,090.1	70.0	252	2,631.1	283	755.1	271	10,024	370	28
324	316	**SANDVIK GROUP**	SWEDEN	2,086.0	119.1	185	2,914.8	257	704.7	290	26,256	190	34
325	394	**ITOHAM FOODS**[5]	JAPAN	2,082.1	35.7	341	1,034.7	459	501.5	353	5,780	435	20
326	365	**ONODA CEMENT**[5]	JAPAN	2,077.1	20.4	402	3,003.4	250	487.8	363	6,518	422	32
327	381	**HERAEUS HOLDING**	W. GERMANY	2,074.3	20.5	400	1,126.2	446	538.4	337	7,900	395	33
328	331	**YOKOHAMA RUBBER**	JAPAN	2,063.3	31.4	359	2,412.0	302	350.0	411	10,750	360	30
329	339	**KHD (KLÖCKNER-HUMBOLDT-DEUTZ)**	W. GER.	2,051.1	(158.3)	485	1,982.2	352	395.0	394	19,539	237	45
330	230	**CSR**[5]	AUSTRALIA	2,031.9	73.1	247	2,798.3	268	1,287.7	173	13,406	316	32
331	410	**SUMITOMO RUBBER**	JAPAN	2,021.5	34.2	348	2,365.6	305	201.9	460	10,000	371	30
332	353	**TOYO SASH**[6]	JAPAN	2,018.4	52.1	299	1,798.6	370	639.1	308	4,530	464	34
333	350	**ESSELTE**	SWEDEN	2,016.0	53.6	295	1,756.1	375	339.0	417	19,395	239	44
334	364	**TOYODA AUTOMATIC LOOM WORKS**[5]	JAPAN	2,014.7[9]	58.9[9]	287	1,532.3[9]	399	944.1[9]	225	6,591[9]	420	40
335	284	**NORTHERN FOODS**[5]	BRITAIN	2,011.8	104.5	203	731.8	482	423.1	382	27,499	182	20
336	398	**SUMITOMO HEAVY INDUSTRIES**[5]	JAPAN	2,006.9	(62.6)	472	2,779.3	271	358.0	409	6,000	431	45
337	348	**UNITIKA**[5]	JAPAN	2,002.1	19.6	406	2,310.7	315	150.5	473	7,305	404	22
338	290	**TEXACO CANADA**[10]	CANADA	1,997.6	241.3	97	2,978.8	253	1,989.7	114	3,288	480	29
339	347	**UNION INTERNATIONAL**	BRITAIN	1,989.3	21.6	397	923.2	470	217.8	454	22,107	221	20
340	362	**EMPRESA COLOMBIANA DE PETRÓL.**[2]	COL	1,960.1	103.0	207	2,435.2	299	305.7	430	11,824	342	29
341	293	**BURMAH OIL**	BRITAIN	1,959.7	119.2	183	1,498.0	407	709.9	287	10,153	366	29
342	383	**RAUMA-REPOLA**	FINLAND	1,946.0	19.8	404	3,277.2	232	754.4	272	18,154	254	26
343	411	**KEMIRA**[2,4]	FINLAND	1,941.1	64.3	274	2,726.0	272	622.0	316	13,675	309	28
344	379	**BRITOIL**	BRITAIN	1,938.4	238.7	100	3,970.0	186	1,586.1	149	1,663	493	29
345	333	**DOMTAR**	CANADA	1,936.5	121.4	180	2,195.8	325	941.4	226	15,871	288	26
346	387	**MORINAGA MILK INDUSTRY**[5]	JAPAN	1,933.6	10.6	433	1,050.5	457	263.9	441	4,700	458	49
347	391	**MINOLTA CAMERA**[5]	JAPAN	1,930.7	45.0	314	2,119.1	336	606.9	318	11,200	351	38
348	325	**RACAL ELECTRONICS**[4,5]	BRITAIN	1,926.2	68.2	259	2,029.6	345	722.5	284	32,418	146	36
349	327	**STELCO**[4]	CANADA	1,920.2	47.8	304	2,156.3	329	1,025.4	213	16,960	270	33
350	297	**CHARBONNAGES DE FRANCE**[2]	FRANCE	1,892.0	(27.8)	460	5,127.8	151	185.4	465	39,478	121	28

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351	330	ISCOR	SOUTH AFRICA	1,886.1	109.7	197	2,693.3	278	1,761.6	139	60,800	76	33
352	380	DAISHOWA PAPER MANUFACTURING	JAPAN	1,864.3	46.8	310	2,892.2	260	270.1	440	5,190	449	26
353	•	DAF	NETHERLANDS	1,864.1	31.2	361	1,788.8	371	550.4	330	16,631	278	40
354	344	WHITBREAD	BRITAIN	1,859.5	159.6	153	2,960.4	254	1,806.8	133	47,723	93	49
355	392	MEIJI SEIKA	JAPAN	1,850.5	17.0	416	1,243.5	436	683.8	295	5,590	443	20
356	376	SOURCE PERRIER	FRANCE	1,838.9	94.9	218	2,071.6	341	241.9	449	11,000	356	20
357	•	SAINT LOUIS	FRANCE	1,823.8	243.4	94	1,503.4	406	660.2	301	10,742	356	20
358	302	JOHNSON MATTHEY	BRITAIN	1,822.9	38.3	325	855.4	474	364.5	406	7,089	411	33
359	385	ENSO-GUTZEIT	FINLAND	1,819.5	161.4	151	3,439.6	218	797.8	265	16,647	276	26
360	407	TOYOTA AUTO BODY	JAPAN	1,815.0[9]	9.8[9]	437	593.1[9]	488	189.3[9]	462	6,979	415	40
361	369	ATLAS COPCO	SWEDEN	1,814.9	93.3	223	1,855.4	363	562.2	325	18,777	240	45
362	386	MITSUI MINING AND SMELTING	JAPAN	1,812.2	(61.4)	471	2,096.9	339	84.8	484	6,903	417	33
363	414	MITSUBISHI MINING & CEMENT	JAPAN	1,809.2	24.6	385	2,299.0	316	453.8	372	6,417	424	32
364	384	KANTO AUTO WORKS	JAPAN	1,800.2[9]	11.0[9]	431	518.2[9]	492	152.6[9]	472	5,747[9]	436	40
365	378	FAG KUGELFISCHER GEORG SCHÄFER	W. GER.	1,794.8[4]	29.1	365	2,003.5	348	594.3	320	30,818	151	34
366	371	INCO	CANADA	1,789.5	125.2	176	2,994.4	251	1,194.6	185	18,706	250	10
367	360	FREUDENBERG	W. GERMANY	1,788.9[3]	N.A.		1,348.4	423	497.0	360	23,940	208	40
368	361	NICHIRO GYOGYO	JAPAN	1,786.3	5.2	441	1,103.0	451	82.3	486	4,228	467	20
369	368	DR.ING.H.C.F.PORSCHE	W. GERMANY	1,785.6	27.2	376	854.7	475	272.1	439	8,556	380	40
370	355	KONINKLIJKE WESSANEN	NETHERLANDS	1,785.3	39.6	324	724.2	484	321.8	422	5,355	447	20
371	374	ALFA-LAVAL	SWEDEN	1,783.5	40.2	322	2,242.8	321	509.7	348	16,501	283	45
372	373	PERNOD RICARD	FRANCE	1,780.7	101.0	209	1,715.1	386	719.8	286	10,111	368	49
373	433	ASAHI BREWERIES	JAPAN	1,766.5	16.8	417	3,948.9	190	674.4	298	4,805	456	49
374	345	BLUE CIRCLE INDUSTRIES	BRITAIN	1,751.8	315.3	65	3.304.1	228	1,716.3	141	16,624	279	32
375	•	NOVA	CANADA	1,751.3	135.1	169	3,603.9	207	1,139.6	195	7,100	410	29
376	320	MITSUI MINING	JAPAN	1,750.5	(77.6)	476	1,908.1	358	100.9	480	2,189	490	10
377	366	WELLCOME	BRITAIN	1,747.6	145.2	163	1,838.2	365	912.7	236	19,338	241	42
378	426	KYOCERA	JAPAN	1,746.6	109.3	198	2,928.7	256	2,058.5	108	17,000	268	36
379	428	OMRON TATEISI ELECTRONICS	JAPAN	1,742.7	19.1	408	2,045.9	342	744.0	277	13,364	318	36
380	404	LINDE	W. GERMANY	1,741.8	65.5	270	1,718.5	381	665.4	300	14,619	299	45
381	338	PACIFIC DUNLOP	AUSTRALIA	1,740.3	67.8	262	1,276.7	431	518.4	345	29,774	160	30
382	377	KYOWA HAKKO KOGYO	JAPAN	1,727.5	67.2	264	2,581.0	288	927.4	231	6,132	429	42
383	412	NIPPON SEIKO	JAPAN	1,724.4	26.1	376	2,610.8	285	971.6	222	10,907	358	45
384	332	AMCOR	AUSTRALIA	1,722.1	67.8	263	1,341.8	424	624.1	315	33,300	139	26
385	236	ULTRAMAR	BRITAIN	1,708.0	77.2	241	2,891.0	261	1,144.2	194	3,306	479	29
386	370	CONSOLIDATED-BATHURST	CANADA	1,705.3	161.7	150	1,741.8	377	771.3	267	15,111	293	26
387	357	METAL BOX	BRITAIN	1,697.7	82.8	231	1,182.1	441	510.5	347	26,090	191	34
388	388	MITSUBISHI RAYON	JAPAN	1,692.5	22.3	394	2,146.7	330	507.6	350	7,384	403	28
389	401	KURARAY	JAPAN	1,688.1	29.5	363	1,994.7	350	294.4	431	8,079	392	22
390	403	DAIKIN INDUSTRIES	JAPAN	1,671.3	41.6	318	1,508.9	404	463.5	368	8,050	393	45
391	415	AGA	SWEDEN	1,668.6	70.3	251	2,574.1	289	638.0	310	16,138	286	28
392	424	PWA	W. GERMANY	1,668.2	37.3	334	1,177.2	442	240.0	450	9,851	373	26
393	•	RHEINMETALL BERLIN	W. GERMANY	1,661.1	35.0	344	1,364.3	420	82.6	485	14,863	295	45
394	•	E. MERCK	W. GERMANY	1,657.4[4]	80.0	235	1,878.3	361	603.3	260	20,704	231	28
395	430	CITIZEN WATCH	JAPAN	1,652.4	20.4	401	1,709.6	383	658.9	302	12,163	337	38
396	459	SHIONOGI	JAPAN	1,650.9	57.3	291	1,890.7	360	984.0	219	8,397	386	42
397	417	VALMET	FINLAND	1,650.4	11.1	430	1,806.5	369	416.2	387	17,342	263	45
398	437	JAGUAR	BRITAIN	1,642.6	100.5	210	1,416.6	417	499.8	357	12,483	330	40
399	409	INDÚSTRIAS VOTORANTIM	BRAZIL	1,641.8	276.4	78	1,921.7	356	1,547.0	152	6,222	425	10
400	389	IVACO	CANADA	1,640.1	25.1	382	1,359.2	422	450.0	373	12,170	336	33

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401	276	**PIONEER CONCRETE SERVICES**[1]	AUSTRALIA	1,637.0	111.9	193	1,759.0	374	658.8	303	8,500	381	29
402	393	**DOFASCO**	CANADA	1,631.2	116.1	189	2,353.7	309	1,337.2	170	13,400	317	33
403	418	**CARL-ZEISS-STIFTUNG**[6]	W. GERMANY	1,629.8	22.2	395	1,528.5	401	243.7	448	24,843	199	38
404	399	**RHEINISCHE BRAUNKOHLENWERKE**	W. GER.	1,627.1	(3.7)	451	4,185.8	180	587.0	323	16,500	284	10
405	304	**IMETAL**	FRANCE	1,615.6	22.6	392	1,116.7	449	433.0	376	5,806	433	10
406	429	**AECI**	SOUTH AFRICA	1,607.8	104.5	202	1,200.7	439	524.7	342	27,800	180	28
407	447	**TOTO**	JAPAN	1,594.1[9]	68.9[9]	255	1,856.7[9]	362	852.1[9]	252	8,004[9]	394	32
408	372	**UNION LAITIÈRE NORMANDE**	FRANCE	1,593.9	6.9	440	666.0	486	86.5	483	5,011	452	20
409	•	**METSA-SERLA**	FINLAND	1,589.6	22.1	396	2,421.4	301	377.1	404	12,865	322	26
410	443	**NTN TOYO BEARING**[5]	JAPAN	1,586.6	32.3	354	2,113.9	338	703.2	291	10,426	364	45
411	363	**MITSUI PETROCHEMICAL INDUSTRIES**[5]	JAPAN	1,581.8	32.3	352	2,572.7	290	424.5	381	5,003	453	28
412	•	**BHARAT PETROLEUM**[2,5]	INDIA	1,576.9	47.2	307	967.4	465	180.9	467	9,397	375	29
413	•	**T&N**	BRITAIN	1,575.6	110.2	196	1,443.9	411	729.3	280	39,566	120	40
414	•	**ARABIAN OIL**	JAPAN	1,573.9	16.0	420	957.9	466	431.7	378	2,200	489	29
415	396	**BORAL**[1]	AUSTRALIA	1,573.5	(54.4)	469	1,677.1	388	727.9	281	18,500	251	32
416	375	**ACI INTERNATIONAL**[5]	AUSTRALIA	1,573.3	(5.9)	452	1,607.0	393	763.3	270	23,900	209	32
417	390	**PEARSON**	BRITAIN	1,560.8	392.3	56	2,022.7	346	1,120.8	197	23,250	211	27
418	400	**MITSUI ENGINEERING & SHIPBLDG.**[5]	JAPAN	1,557.5	(25.5)	459	3,206.6	236	588.1	322	9,422	374	45
419	434	**AXEL SPRINGER VERLAG**	W. GERMANY	1,548.0	53.6	294	774.6	481	26.0	489	11,452	348	27
420	406	**DOUWE EGBERTS**[1,10]	NETHERLANDS	1,537.1	80.2	234	1,122.0	447	500.5	355	7,682	399	20
421	454	**YOSHIDA KOGYO**[5]	JAPAN	1,528.8	71.7	250	3,322.4	226	935.4	228	13,916	307	32
422	271	**ZAMBIA INDUSTRIAL & MINING**[3]	ZAM	1,527.9	12.4	429	4,220.2	177	1,468.6	155	132,470	29	10
423	479	**GRUNDIG**[5]	W. GERMANY	1,523.7	53.6	296	1,172.6	443	399.1	392	19,478	238	36
424	440	**SAPPORO BREWERIES**	JAPAN	1,520.4	41.3	320	3,118.6	243	922.0	234	4,415	465	49
425	395	**MITSUBISHI GAS CHEMICAL**[5]	JAPAN	1,515.2	26.2	375	1,901.4	359	499.9	356	5,495	446	28
426	352	**KYMMENE**	FINLAND	1,513.1	35.8	339	3,073.3	245	940.5	227	9,876	372	26
427	•	**COPERSUCAR**[9]	BRAZIL	1,512.8	N.A.		337.2	495	5.0	491	3,500	476	28
428	469	**RENGO**[5]	JAPAN	1,498.7	13.7	424	1,104.5	450	233.8	451	4,600	461	26
429	464	**NIHON CEMENT**[20]	JAPAN	1,496.1	16.6	418	2,587.5	287	348.6	412	5,540	444	32
430	431	**DOOSAN**	SOUTH KOREA	1,478.2	35.0	345	1,517.8	403	307.2	429	14,793	296	49
431	•	**SAGEM**[4]	FRANCE	1,477.0	23.2	390	1,334.4	425	208.4	459	7,737	397	36
432	461	**MEJERISELSKABET DANMARK**[6,9]	DENMARK	1,471.8	61.9	278	471.3	494	128.8	475	4,694	460	20
433	•	**BESNIER**	FRANCE	1,466.8	32.3	353	295.4	496	19.7	490	5,664	441	20
434	425	**REDLAND**[5]	BRITAIN	1,461.0	117.7	187	1,843.2	364	802.5	261	12,366	332	32
435	423	**FREE STATE CONSOL. GOLD MINES**[6]	S. AFRICA	1,451.0	415.8	53	2,116.7	337	1,777.1	136	112,238	40	10
436	•	**MAXWELL COMMUNICATION**	BRITAIN	1,449.2	216.0	112	3,364.2	224	1,892.4	126	16,992	269	27
437	499	**JEFFERSON SMURFIT GROUP**[17]	IRELAND	1,447.8	37.2	335	1,188.7	440	278.7	437	13,522	315	26
438	413	**IBM NEDERLAND**[3,10]	NETHERLANDS	1,441.9	103.2	204	N.A.		N.A.		5,608	442	44
439	435	**LIEBHERR INTERNATIONAL**	SWITZERLAND	1,441.0	N.A.		N.A.		N.A.		13,136	320	45
440	451	**CASIO COMPUTER**[30]	JAPAN	1,436.6	18.0	411	1,813.0	368	801.5	262	7,590	401	44
441	•	**ASCOM HOLDING**	SWITZERLAND	1,433.9	27.4	371	1,539.8	398	667.7	294	14,264	304	36
442	•	**PRIMA MEAT PACKERS**[5]	JAPAN	1,433.3	4.1	444	587.9	489	124.1	476	3,780	471	20
443	481	**EBARA**[20]	JAPAN	1,428.0	4.3	443	1,643.5	390	528.5	340	6,186	427	45
444	336	**CONOCO**[10]	BRITAIN	1,425.3	(17.5)	457	1,222.9	437	837.2	255	1,474	495	29
445	452	**ARLA**[1]	SWEDEN	1,424.1	.5	449	581.5	490	120.3	477	6,220	426	20
446	351	**SASOL**[1]	SOUTH AFRICA	1,417.6	239.8	98	2,708.0	276	1,494.2	153	33,100	141	28
447	419	**BHARAT HEAVY ELECTRICALS**[2,5,11]	INDIA	1,416.0	59.7	283	2,340.6	312	466.9	367	74,918	60	36
448	457	**IMI**	BRITAIN	1,411.0	100.2	211	1,264.2	433	502.0	319	21,268	227	34
449	427	**FORD MOTOR CO. OF AUSTRALIA**	AUS.	1,410.9[10]	33.9	351	800.1	478	262.3	443	11,686	343	40
450	•	**SABIC**[2]	SAUDI ARABIA	1,410.4	287.8	76	6,300.7	125	2,045.9	110	8,105	391	28

The definitions and concepts underlying the figures in this directory are explained on page D33. ✓ Industry code definitions appear on page D33. Footnotes appear on page D33.

THE INTERNATIONAL 500

RANK BY SALES 1987	1986	COMPANY	COUNTRY	SALES $ Millions	NET INCOME $ Millions	Rank	ASSETS $ Millions	Rank	STOCKHOLDERS' EQUITY $ Millions	Rank	EMPLOYEES Number	Rank	INDUSTRY CODE ✓
451	358	**TI GROUP**	BRITAIN	1,403.0	210.8	115	945.1	468	385.3	402	21,000	228	34
452	462	**NISSHINBO INDUSTRIES**[31]	JAPAN	1,400.9	36.0	338	1,419.3	415	829.7	256	7,836	396	22
453	441	**PROUVOST**	FRANCE	1,396.3	13.7	425	1,261.3	435	225.5	453	16,753	274	22
454	474	**DENKI KAGAKU KOGYO**[5]	JAPAN	1,396.3	20.2	403	2,182.8	327	422.0	383	5,340	448	28
455	467	**NAN YA PLASTICS**	TAIWAN	1,388.9	96.8	217	1,146.2	444	519.0	344	12,560	326	28
456	466	**TOSOH**[5,32]	JAPAN	1,387.8	16.2	419	2,341.7	311	343.3	413	5,695	438	28
457	456	**GRUPO INDUSTRIAL ALFA**	MEXICO	1,380.4	(365.6)	494	2,357.0	307	243.9	447	29,000	168	33
458	446	**NISSAN DIESEL MOTOR**[5]	JAPAN	1,380.3[9]	35.8[9]	340	1,696.3[9]	385	317.6[9]	425	5,667[9]	439	40
459	231	**MOBIL OIL ITALIANA**[10]	ITALY	1,371.6	(82.8)	477	807.4	476	59.8	487	1,055	497	29
460	•	**COOKSON GROUP**	BRITAIN	1,370.2	146.7	160	1,686.1	387	934.9	229	11,953	340	33
461	422	**UNIÓN EXPLOSIVOS RIO TINTO**	SPAIN	1,360.7	163.9	149	1,427.8	412	491.6	362	7,022	413	29
462	402	**VARITY**[17]	CANADA	1,359.3	(23.3)	458	1,504.1	405	342.1	415	18,969	245	45
463	460	**DIESEL KIKI**[12]	JAPAN	1,359.0	18.7	409	1,367.6	419	417.8	385	7,606	400	40
464	488	**TOYO TIRE & RUBBER**[5]	JAPAN	1,358.7	10.6	432	1,261.4	434	113.6	478	6,881	418	30
465	455	**Q.P.**[14]	JAPAN	1,354.9	21.2	399	1,028.6	460	336.5	419	3,722	473	20
466	458	**BROTHER INDUSTRIES**[33]	JAPAN	1,353.7	44.0	315	1,583.0	394	752.6	273	8,493	382	44
467	438	**MOLSON**[5]	CANADA	1,353.1	38.1	327	947.6	467	408.8	389	11,400	349	49
468	•	**DU PONT (GERMANY)**	W. GERMANY	1,352.9[9]	43.9[9]	316	857.8[9]	473	295.5[9]	432	4,192[9]	468	28
469	•	**HEWLETT-PACKARD (GERMANY)**	W. GERMANY	1,347.1[9]	61.2	279	1,096.5	453	425.9	380	5,130	450	44
470	•	**WACKER-CHEMIE**	W. GERMANY	1,342.5	25.3	381	991.8	463	385.5	401	11,943	341	28
471	471	**A. AHLSTROM**	FINLAND	1,338.2	21.2	398	2,241.1	322	556.4	327	11,033	354	26
472	468	**SEITA**[2,9]	FRANCE	1,334.2	29.5	364	1,722.5	380	443.1	375	6,963	416	21
473	•	**ENSITE**[10]	CANADA	1,327.6	79.1	240	235.4	497	542.0	334	5,899	432	40
474	470	**GEORG FISCHER**	SWITZERLAND	1,324.1	23.5	388	1,484.1	410	504.1	351	14,473	301	40
475	397	**NORTHERN ENGINEERING INDUSTRIES**	BRITAIN	1,318.9	23.4	389	1,053.5	456	229.0	452	20,731	230	45
476	421	**CONSOLIDATED GOLD FIELDS**[1]	BRITAIN	1,318.6	206.5	118	2,716.3	273	1,104.3	199	12,486	329	32
477	•	**NIPPON SHEET GLASS**[5]	JAPAN	1,318.0	31.8	357	1,657.3	389	654.4	305	5,721	437	32
478	•	**GENERAL MOTORS CONTINENTAL**[10]	BELGIUM	1,316.0	10.3	435	578.1	491	48.4	488	N.A.		40
479	•	**AICHI MACHINE INDUSTRY**[5]	JAPAN	1,310.5[9]	8.3[9]	439	623.5[9]	487	173.5[9]	468	4,534[9]	463	40
480	•	**TAIO PAPER MFG.**	JAPAN	1,300.6[9]	36.3[9]	337	1,559.0[9]	397	321.2[9]	423	2,600[9]	484	26
481	491	**KANEGAFUCHI CHEMICAL INDUSTRY**[5]	JAPAN	1,299.0	46.2	312	1,305.2	428	525.1	341	4,592	462	28
482	•	**EZAKI GLICO**[5]	JAPAN	1,296.8	30.4	362	1,042.4	458	462.2	369	3,343	478	20
483	492	**VICKERS**	BRITAIN	1,292.2	69.3	254	1,010.5	462	419.4	384	16,731	275	45
484	420	**ARBED**[9]	LUXEMBOURG	1,290.2	(59.6)	470	2,146.3	331	800.6	263	11,532	346	33
485	482	**CARLSBERG**[6,48]	DENMARK	1,285.3	68.3	257	1,423.6	413	508.8	349	14,141	305	49
486	•	**PROCTER & GAMBLE (GERMANY)**	W. GER.	1,285.2[10]	25.1	383	900.4	471	384.8	403	4,700	459	43
487	439	**MOBIL OIL FRANÇAISE**[10]	FRANCE	1,281.3	25.7	379	726.0	483	256.3	444	1,647	494	29
488	•	**MURATA MFG.**[30]	JAPAN	1,276.9	103.1	205	2,255.1	319	1,151.5	192	16,894	272	36
489	448	**GENERAL ELECTRIC CANADA**	CANADA	1,273.9	47.1	308	792.4	479	392.0	396	11,115	353	45
490	•	**DMC (DOLLFUS MIEG)**	FRANCE	1,271.8	32.1	356	1,017.6	461	307.2	428	12,287	335	22
491	478	**VAAL REEFS EXPLOR. & MINING**	S. AFRICA	1,269.9	177.3	134	1,311.9	426	964.7	223	51,414	87	10
492	•	**IBM ESPAÑA**[10]	SPAIN	1,266.2	158.4	154	682.7	485	395.6	393	4,184	469	44
493	•	**BARILLA**	ITALY	1,260.2	58.8	289	800.8	477	140.2	474	5,107	451	20
494	•	**KONE**	FINLAND	1,258.9	24.6	384	1,285.7	430	342.0	416	16,618	280	45
495	•	**KOKUYO**[6]	JAPAN	1,256.3	47.5	305	1,135.5	445	498.3	359	2,644	483	25
496	436	**GENERAL MOTORS DO BRASIL**[3,10]	BRAZIL	1,251.7	94.1	220	1,117.3	448	695.2	292	N.A.		40
497	•	**TATUNG**	TAIWAN	1,248.0	29.1	366	1,420.1	414	249.6	445	21,899	224	36
498	•	**NGK INSULATORS**[5]	JAPAN	1,235.3	41.2	321	1,525.7	402	640.8	306	8,600	379	32
499	483	**SHOWA SANGYO**[16]	JAPAN	1,232.0	17.4	413	778.3	480	216.4	456	2,232	488	20
500	•	**AMATIL**	AUSTRALIA	1,227.0	93.4	222	870.6	472	387.0	400	12,420	331	21
		TOTALS		2,522,265.3	78,161.7		2,757,506.9		871,810.1		18,501,156		

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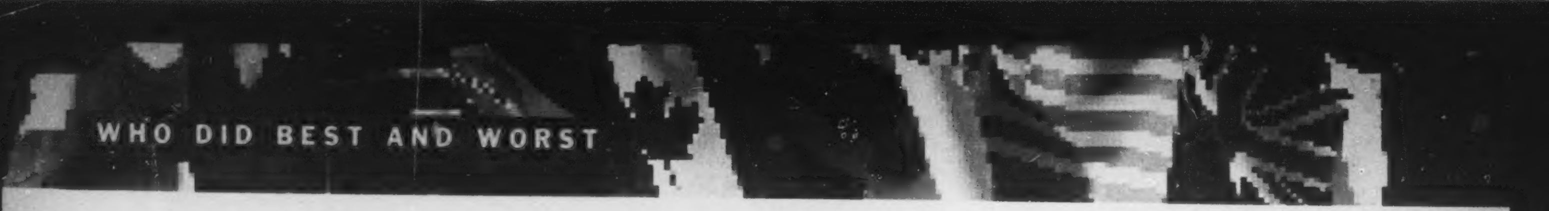


10 BIGGEST INCREASES†

CHANGE IN SALES	Sales rank		CHANGE IN PROFITS	Sales rank	
FERRUZZI	253	471.2%	THORN EMI	148	20,192.0%
TRELLEBORG	290	435.4	SAINT LOUIS	357	1,336.6
INDÚSTRIAS VOTORANTIM	399	255.2	EMPRESA COLOMBIANA	340	847.0
SIDERBRÁS	176	243.2	NORANDA	125	730.3
PEMEX (PETRÓLEOS MEXICANOS)	36	168.0	DALGETY	77	692.7
COPERSUCAR	427	159.1	UNIÓN EXPLOSIVOS RIO TINTO	461	684.8
YPF	147	156.8	HYUNDAI HEAVY INDUSTRIES	225	603.9
USINOR-SACILOR	44	129.7	NISSAN DIESEL MOTOR	458	570.8
KF INDUSTRI	267	116.4	GUINNESS	192	515.9
NORANDA	125	115.0	HONSHU PAPER	278	497.4

10 BIGGEST DECREASES†

DSM	158	38.7	TAIYO FISHERY	109	99.0%
ULTRAMAR	385	34.9	GENERAL MOTORS OF CANADA	40	98.8
ESSO ITALIANA	254	31.4	ARLA	445	96.5
MITSUBISHI HEAVY INDUSTRIES	45	30.0	EBARA	443	93.5
PETROLIAM NASIONAL BERHAD	208	27.6	PETROBRÁS	27	91.7
KUWAIT PETROLEUM	53	27.3	SUMITOMO METAL MINING	309	87.3
IDEMITSU KOSAN	79	25.9	HOESCH	166	78.1
CONOCO LTD.	444	23.4	ESSO (GERMANY)	130	75.4
MITSUBISHI OIL	210	22.9	GENERAL SEKIYU	260	71.4
NIPPON OIL	47	19.4	STEEL AUTHORITY OF INDIA	250	68.2

INDUSTRY MEDIANS

% OF INCREASES		% OF INCREASES	
PUBLISHING, PRINTING	31.8	TOBACCO	67.0%
SCIENTIFIC & PHOTOGRAPHIC EQUIP.	30.4%	TEXTILES	60.8
MOTOR VEHICLES AND PARTS	27.4	FOREST PRODUCTS	59.6
BUILDING MATERIALS	26.3	BUILDING MATERIALS	52.9
ELECTRONICS	25.8	FOOD	52.7
FOOD	25.2	BEVERAGES	50.2
INDUSTRIAL AND FARM EQUIPMENT	23.4	RUBBER PRODUCTS	46.9
FOREST PRODUCTS	22.7	METAL PRODUCTS	42.1
BEVERAGES	22.6	CHEMICALS	40.4
TEXTILES	22.4	PUBLISHING, PRINTING	39.8
RUBBER PRODUCTS	21.8	PHARMACEUTICALS	39.8
CHEMICALS	20.7	INDUSTRIAL AND FARM EQUIPMENT	33.3
COMPUTERS (INCLUDES OFFICE EQUIP.)	20.6	AEROSPACE	29.8
SOAPS, COSMETICS	20.6	METALS	25.4
PHARMACEUTICALS	19.7	MOTOR VEHICLES AND PARTS	24.7
METAL PRODUCTS	16.6	PETROLEUM REFINING	24.6
METALS	16.4	MINING, CRUDE-OIL PRODUCTION	11.3
AEROSPACE	13.7	SOAPS, COSMETICS	10.0
MINING, CRUDE-OIL PRODUCTION	13.6	COMPUTERS (INCLUDES OFFICE EQUIP.)	6.6
TOBACCO	11.8	ELECTRONICS	6.2
PETROLEUM REFINING	7.5	% OF DECREASES	
		SCIENTIFIC & PHOTOGRAPHIC EQUIP.	26.8%

†Listings exclude companies that lost money in 1986 or 1987.

THE MONEY LOSERS

	Sales rank	LOSS $ Millions
SIDERBRÁS*	176	$4,362.1
USINOR-SACILOR*	44	969.5
BRITISH COAL*	92	429.8
GRUPO INDUSTRIAL ALFA*	457	365.6
VALE DO RIO DOCE	299	347.0
INI*	39	344.9
COAL INDIA*	301	259.7
KOOR INDUSTRIES	265	252.0
STATOIL	66	227.5
KLÖCKNER-WERKE	322	208.7
BRITISH AEROSPACE	94	180.3
SAARBERGWERKE*	216	164.4
KHD	329	158.3
ISHIKAWAJIMA-HARIMA	116	145.8
NIPPON KOKAN	82	129.4
SANYO ELECTRIC	70	118.9
MCDERMOTT INTERNATIONAL	202	102.4
SNECMA*	273	94.3
SUMITOMO METAL INDUSTRIES	112	88.8
KAWASAKI HEAVY INDUSTRIES*	142	87.1
MOBIL OIL ITALIANA*	459	82.8
MITSUI MINING	376	77.6
OERLIKON-BÜHRLE*	272	77.6
KOBE STEEL	96	74.6
NIPPON STEEL	29	69.7
SUMITOMO HEAVY INDUSTRIES*	336	62.6
MITSUI MINING AND SMELTING*	362	61.4
ARBED	484	59.6
BORAL	415	54.4
ESSO ITALIANA	254	53.3
COCKERILL SAMBRE*	170	50.3
ROVER GROUP*	140	43.9
KANEBO	189	43.1
KAWASAKI STEEL	104	42.7
NIPPON LIGHT METAL*	266	41.4
HOOGOVENS GROEP	235	37.7
UBE INDUSTRIES	212	33.0
CHARBONNAGES DE FRANCE*	350	27.8
MITSUI ENGINEERING*	418	25.6
VARITY	462	23.3
CONOCO LIMITED	444	17.5
SHOWA DENKO	174	14.5
VEBA OEL	93	11.1
ENTREPRISE MINIÈRE ET CHIM.*	289	9.3
KONICA	255	7.1
ACI INTERNATIONAL	416	5.9
RHEINISCHE BKW	404	3.7
MITSUBISHI METAL	163	3.4

*Also lost money in 1986.

ARRIVALS AND DEPARTURES

NEWCOMERS

	1987 sales rank
ARABIAN OIL	414
ASCOM	441
BARILLA	493
BESNIER	433
BHARAT PETROLEUM	412
COPERSUCAR	427
CEA-INDUSTRIE	144
COOKSON GROUP	460
CRA	188
DU PONT DE NEMOURS DEUTSCHLAND	468
ELDERS IXL	108
ENSITE	473
EZAKI GLICO	482
FERRUZZI AGRICOLA	253
GENERAL MOTORS CONTINENTAL	478
HEWLETT-PACKARD (GERMANY)	469
HINDUSTAN PETROLEUM	291
IBM ESPAÑA	492
INI	39
KOKUYO	495
KONE	494
LVMH	308
MCDERMOTT INTERNATIONAL	202
MAXWELL COMMUNICATION	436
METSA-SERLA	409
MITSUBISHI MOTORS	56
MURATA MANUFACTURING	488
NGK INSULATORS	498
PETRONAS (PETROLIAM NASIONAL BHD)	208
PROCTER & GAMBLE (GERMANY)	486
REPSOL	84
RHEINMETALL BERLIN	393
SABIC	450
SIDERBRÁS	176
SAINT LOUIS	357
TAIO PAPER MANUFACTURING	480
TATUNG	497
TRELLEBORG	290
WACKER-CHEMIE	470

RETURNEES*

ABITIBI-PRICE (1985: 264)	304
AICHI MACHINE INDUSTRY (1982: 476)	479
ASSOCIATED BRITISH FOODS (1975: 84)	203
DAF (1979: 463)	353
DMC (DOLLFUS MIEG) (1982: 494)	490
E. MERCK (1984: 437)	394
NIPPON LIGHT METAL (1985: 278)	266
NIPPON SHEET GLASS (1984: 498)	477
NOVA (1984: 176)	375
PRIMA MEAT PACKERS (1984: 494)	442
SAGEM (1983: 457)	431
T&N (1982: 413)	413

DEPARTURES

	1986 sales rank
BABCOCK INTERNATIONAL[1]	315
BEGHIN-SAY[2]	349
BOLIDEN[2]	326
BOSCH-SIEMENS HAUSGERATE[3]	318
CHINA STEEL	489
CHRYSLER DE MÉXICO	485
DAICEL CHEMICAL INDUSTRIES	497
DAIKYO OIL[4]	141
DIEHL	496
DOME PETROLEUM	465
DOW CHEMICAL EUROPE[1]	165
DRG	498
EFIM[1]	162
EMP (EMPRESA NACIONAL DEL PETRÓLEO)[2]	178
ENGLISH CHINA CLAYS	494
ENSIDESA (EMPRESA NAC. SIDERÚRGICA)[2]	473
FICHTEL & SACHS[2]	490
FORD BRASIL[2]	408
GECHEM	432
GULF CANADA[1]	175
HATTORI SEIKO[5]	274
IMASCO[4]	170
ISRAEL AIRCRAFT INDUSTRIES	495
KOA OIL	303
LESIEUR[2]	463
MACMILLAN BLOEDEL[2]	311
MARUZEN OIL[4]	113
METALLURGIE HOBOKEN-OVERPELT	477
MO OCH DOMSJO	487
MOBIL OIL (BRITAIN)	472
MOBIL OIL CANADA	445
MOËT-HENNESSY[2]	480
NORCEM[4]	416
OUTOKUMPU[1]	382
PETROGAL (PETRÓLEOS DE PORTUGAL)[1]	356
PREUSSAG[5]	148
SACILOR[2]	80
SCHINDLER HOLDING	486
SIDOR (SIDERÚRGICA DEL ORINOCO)	405
SIDERÚRGICA NACIONAL	500
SMH	493
SNIA BPD[2]	342
STANDARD ELEKTRIK LORENZ[2]	232
SUPERFOS	449
SWEDYARDS	450
SYNTEX	484
TOKYO SANYO ELECTRIC[2]	197
VALLOUREC	328
VAN LEER	476
VÖEST-ALPINE[1]	68
WÄRTSILÄ	442

*Figures in parentheses indicate year and sales rank the last time the company was listed. [1] Financial data not available. [2] Acquired by another FORTUNE International 500 company. [3] Sales are consolidated in accounts of Robert Bosch. [4] New company created through merger with another oil company does not qualify as an industrial. [5] No longer classified as an industrial.

THE 500 BY COUNTRY

	1-100	101-200	201-300	301-400	401-500	Total	Largest Company	$ Millions	Rank
ARGENTINA	0	1	0	0	0	1	YPF (YACIMIENTOS PETROLIFEROS)	4,774.7	147
AUSTRALIA	0	4	0	3	5	12	ELDERS IXL	6,169.3	108
AUSTRIA	0	0	1	0	0	1	OMV	2,745.9	248
BELGIUM	1	2	0	0	1	4	PETROFINA	8,583.2	64
BRAZIL	1	1	1	1	2	6	PETROBRÁS (PETRÓLEO BRASILEIRO)	15,640.5	27
BRITAIN	11	18	19	14	11	73	BRITISH PETROLEUM	45,205.9	2
BRITAIN/NETHERLANDS	2	0	0	0	0	2	ROYAL DUTCH/SHELL GROUP	78,319.3	1
CANADA	4	6	3	11	5	29	GENERAL MOTORS OF CANADA	12,732.4	40
CHILE	0	0	0	1	0	1	CODELCO-CHILE	2,132.5	318
COLOMBIA	0	0	0	1	0	1	EMPRESA COLOMBIANA DE PETRÓLEOS	1,960.1	340
DENMARK	0	0	0	0	2	2	MEJERISELSKABET DANMARK	1,471.8	432
FINLAND	0	1	1	4	4	10	NESTE	6,392.8	101
FRANCE	11	8	8	6	8	41	RENAULT	24,539.7	14
INDIA	1	1	2	1	2	7	INDIAN OIL	8,629.0	63
IRELAND	0	0	0	0	1	1	JEFFERSON SMURFIT GROUP	1,447.8	437
ISRAEL	0	0	1	0	0	1	KOOR INDUSTRIES	2,571.1	265
ITALY	4	1	2	0	2	9	IRI	41,270.0	4
ITALY/SWITZERLAND	0	1	0	0	0	1	PIRELLI	5,615.0	122
JAPAN	26	33	33	35	30	157	TOYOTA MOTOR	41,455.0	3
KUWAIT	1	0	0	0	0	1	KUWAIT PETROLEUM	10,107.0	53
LUXEMBOURG	0	0	0	0	1	1	ARBED	1,290.2	484
MALAYSIA	0	0	1	0	0	1	PETRONAS	3,214.5	208
MEXICO	1	0	0	0	1	2	PEMEX (PETRÓLEOS MEXICANOS)	13,130.4	36
NETHERLANDS	2	1	2	2	2	9	PHILIPS' GLOEILAMPENFABRIEKEN	26,021.2	12
NETHERLANDS ANTILLES	0	1	0	0	0	1	SCHLUMBERGER	4,402.0	160
NEW ZEALAND	0	0	1	0	0	1	FLETCHER CHALLENGE	2,893.7	234
NORWAY	2	0	0	0	0	2	STATOIL	8,337.5	66
PANAMA	0	0	1	0	0	1	MCDERMOTT	3,289.3	202
SAUDI ARABIA	0	0	0	0	1	1	SABIC	1,426.3	450
SOUTH AFRICA	1	0	1	1	4	7	BARLOW RAND	7,617.9	78
SOUTH KOREA	4	4	2	0	1	11	SAMSUNG	21,053.5	20
SPAIN	2	0	3	1	2	8	INI	12,738.0	39
SWEDEN	4	1	7	7	1	20	VOLVO	14,576.0	30
SWITZERLAND	3	4	3	0	3	13	NESTLÉ	23,625.9	16
TAIWAN	0	1	0	0	2	3	CHINESE PETROLEUM	5,861.7	114
TURKEY	0	3	0	0	0	3	TURKIYE PETROLLERI	5,720.0	117
VENEZUELA	1	0	0	0	0	1	PETRÓLEOS DE VENEZUELA	8,290.5	67
W. GERMANY	18	8	8	12	8	54	DAIMLER-BENZ	37,535.5	5
ZAMBIA	0	0	0	0	1	1	ZAMBIA INDUSTRIAL & MINING	1,527.9	422

NOTES TO THE INTERNATIONAL 500

SALES

All companies on the list must have derived more than 50% of their sales from manufacturing and/or mining. Sales do not include excise taxes or customs duties levied according to either volume or value sales, and so the figures for some companies—most of which sell gasoline, liquor, or tobacco—may be lower than those published by the companies themselves. Unless otherwise noted, figures exclude intracompany transactions and include consolidated subsidiaries more than 50% owned, either fully or on a prorated basis. Figures have been converted to dollars using an exchange rate that consists of the official average rate during each company's fiscal year (ended December 31, 1987, unless otherwise noted).

NET INCOME

Net income is shown after taxes, minority interests, and extraordinary items. Figures have been converted to dollars using an exchange rate that consists of the official average rate during each company's fiscal year (ended December 31, 1987, unless otherwise noted).

ASSETS

Totals shown at each company's year-end. Figures have been converted to dollars at the official exchange rate at each company's year-end.

STOCKHOLDERS' EQUITY

Stockholders' equity is shown at each company's year-end. Minority interest is not included. Figures have been converted to dollars at the official exchange rate at each company's year-end.

EMPLOYEES

The figure shown is either a year-end or yearly average number as published.

INDUSTRY CODE

Industry code numbers used in the directory indicate which industry represents the greatest volume of industrial sales for each company. The numbers refer to the industry groups below, which are based on categories established by the U.S. Office of Management and Budget and issued by the Federal Statistical Policy and Standards Office. They are the same industry groups as those shown in the tables beginning on page D29. The median figures in the tables refer only to results of companies in the 500. No attempt has been made to calculate medians in groups with fewer than four companies.

10	**Mining, crude-oil production**
20	**Food**
21	**Tobacco**
22	**Textiles**
23	**Apparel**
25	**Furniture**
26	**Forest products**
27	**Publishing, printing**
28	**Chemicals**
29	**Petroleum refining**
30	**Rubber products**
31	**Leather**
32	**Building materials**
33	**Metals**
34	**Metal products**
36	**Electronics**
37	**Transportation equipment**
38	**Scientific and photographic equipment**
40	**Motor vehicles and parts**
41	**Aerospace**
42	**Pharmaceuticals**
43	**Soaps, cosmetics**
44	**Computers**
45	**Industrial and farm equipment**
46	**Jewelry, silverware**
47	**Toys, sporting goods**
49	**Beverages**

The figures in this FORTUNE International 500 Directory were prepared by William Bellis and Frederick Hiroshi Katayama.

FOOTNOTES TO THE 500

- ● Indicates that a corporation was not among the 500 in 1986.

N.A. Not Available.

[1] Figures are for fiscal year ended June 30, 1987.

[2] Government-owned.

[3] Figure is a FORTUNE estimate.

[4] Figures include some significant subsidiaries owned 50% or less, either fully or on a prorated basis.

[5] Figures are for fiscal year ended March 31, 1987.

[6] Figures are for fiscal year ended September 30, 1987.

[7] Company's figures are unaudited due to change in fiscal year-end from November 20, 1986, to March 31, 1987.

[8] Figures are for fiscal year ended February 28, 1987.

[9] Figures are for parent company only.

[10] Revenues may include sales to the U.S. parent company or to other affiliates also on this list.

[11] Merger of Usinor and Sacilor on December 30, 1987.

[12] Figures are for fiscal year ended October 31, 1987.

[13] Figures are for fiscal year ended October 20, 1987.

[14] Figures are for fiscal year ended November 30, 1987.

[15] Company's figures are unaudited due to change in fiscal year-end from October 31, 1986, to March 31, 1987.

[16] Company changed its name to NKK on June 8, 1988.

[17] Figures are for fiscal year ended January 31, 1987.

[18] Company changed its name to Mitsubishi Kasei on June 1, 1988.

[19] Figures are for fiscal year ended May 31, 1987.

[20] Figures are for fiscal year ended April 30, 1987.

[21] Figures are for fiscal year ended April 15, 1987.

[22] Company changed its name from Continental Gummi-Werke on June 24, 1987.

[23] Company changed its name from Konishiroku Photo Industry on October 21, 1987.

[24] Figures are for fiscal year ended April 20, 1987.

[25] Company changed its name to Yamaha on October 1, 1987.

[26] Figures are for fiscal year ended July 31, 1987.

[27] Figures are for fiscal year ended August 31, 1987.

[28] Merger of Louis Vuitton and Moët-Hennessy on September 2, 1987.

[29] Company changed its name from Canada Development Corp. on December 31, 1987.

[30] Figures are for fiscal year ended March 20, 1987.

[31] Figures are for fiscal year ended April 25, 1987.

[32] Company changed its name from Toyo Soda Manufacturing on October 1, 1987.

[33] Figures are for fiscal year ended November 20, 1987.

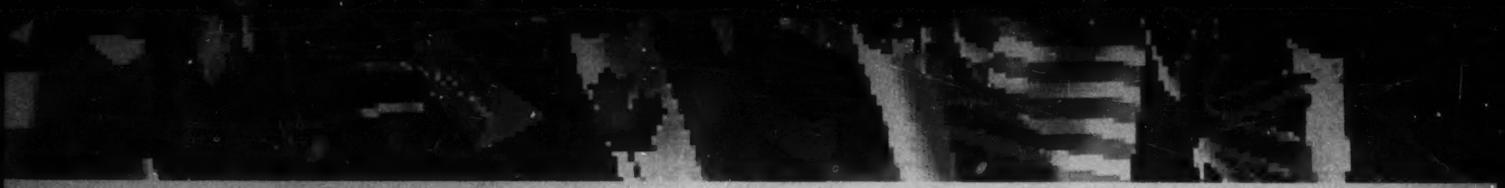
[34] Company changed its name from United Breweries on January 1, 1988.

ALPHABETICAL INDEX TO THE INTERNATIONAL 500

COMPANY	Sales rank
A	
ABITIBI-PRICE	304
ACI INTERNATIONAL	416
ADAM OPEL	55
AECI	406
AÉROSPATIALE	134
AGA	391
AHLSTROM	471
AICHI MACHINE INDUSTRY	479
AISIN SEIKI	220
AJINOMOTO	222
AKZO GROUP	76
ALCAN ALUMINIUM	97
ALFA-LAVAL	371
ALLIED-LYONS	155
ALPS ELECTRIC	300
ALUSUISSE (SWISS ALUMINIUM)	193
AMATIL	500
AMCOR	384
ARABIAN OIL	414
ARBED	484
ARLA	445
ASAHI BREWERIES	373
ASAHI CHEMICAL INDUSTRY	121
ASAHI GLASS	113
ASCOM	441
ASEA	68
ASSOCIATED BRITISH FOODS	203
ATLAS COPCO	361
AVIONS MARCEL DASSAULT	277
AXEL SPRINGER VERLAG	419
B	
BARILLA	493
BARLOW RAND	78
BASF	17
BASS	169
BAT INDUSTRIES	41
BAYER	21
BEECHAM GROUP	168
BERTELSMANN	150
BESNIER	433
BHARAT HEAVY ELECTRICALS	447
BHARAT PETROLEUM	412
BICC	167
BLUE CIRCLE INDUSTRIES	374
BMW	52
BOC GROUP	219
BOEHRINGER INGELHEIM	315
BORAL	415
BOSCH (ROBERT)	34
BRIDGESTONE	120
BRITISH AEROSPACE	94
BRITISH COAL	92
BRITISH PETROLEUM	2
BRITISH STEEL	136
BRITOIL	344
BROKEN HILL PROPRIETARY	115
BROTHER INDUSTRIES	466
BROWN BOVERI	88
BSN	107
BTR	89
BULL	223
BURMAH OIL	341
C	
CADBURY SCHWEPPES	200
CANADA PACKERS	306
CANADIAN PACIFIC	60
CANON	91
CARLSBERG	485
CARL-ZEISS-STIFTUNG	403
CASIO COMPUTER	440
CDF-CHEMIE	198
CEA-INDUSTRIE	144
CEPSA	221
CGE	18
CHARBONNAGES DE FRANCE	350
CHINESE PETROLEUM	114
CHRYSLER CANADA	126
CIBA-GEIGY	50
CITIZEN WATCH	395
COAL INDIA	301
COATS VIYELLA	228
COCKERILLSAMBRE	170
CODELCO-CHILE	318
CONOCO	444
CONSOLIDATED-BATHURST	386
CONSOLIDATED GOLD FIELDS	476
CONTINENTAL	242
COOKSON GROUP	460
COPERSUCAR	427
COURTAULDS	195
CRA	188
CSR	330
D	
DAEWOO	35
DAF	353
DAIDO STEEL	313
DAIHATSU MOTOR	172
DAIKIN INDUSTRIES	390
DAIMLER-BENZ	5
DAINIPPON INK AND CHEMICALS	245
DAI NIPPON PRINTING	128
DAISHOWA PAPER MFG.	352
DALGETY	77
DE BEERS CON. MINES	217
DEGUSSA	103
DENKI KAGAKU KOGYO	454
DEUTSCHE BABCOCK	264
DEUTSCHE TEXACO	252
DIESEL KIKI	463
DMC (DOLLFUS MIEG)	490
DOFASCO	402
DOMTAR	345
DOOSAN	430
DOUWE EGBERT	420
DSM	158
DU PONT	468
E	
EBARA	443
ELDERS IXL	108
ELECTROLUX	49
ELF-AQUITAINE	19
EMPRESA COL. DE PETRÓL.	340
ENI	15
ENSITE	473
ENSO-GUTZEIT	359
ENTREPRISE MINIÈRE ET CHIM.	289
ERICSSON (L.M.) TELEPHONE	139
ESSELTE	333
ESSO (FRANCE)	244
ESSO (GERMANY)	130
ESSO ITALIANA	254
ESSO UK	102
EZAKI GLICO	482
F	
FAG KUGEL. G. SCHÄFER	365
FELDMÜHLE NOBEL	127
FERRUZZI AGRICOLA	253
FIAT	8
FLETCHER CHALLENGE	234
FORD ESPAÑA	294
FORD MOTOR (BRITAIN)	65
FORD MOTOR OF AUSTRALIA	449
FORD MOTOR OF CANADA	51
FORD-WERKE (GERMANY)	57
FREE STATE CONSOLIDATED	435
FREUDENBERG	367
FUJI ELECTRIC	197
FUJI HEAVY INDUSTRIES	157
FUJI PHOTO FILM	133
FUJITSU	43
FURUKAWA ELECTRIC	182
G	
GALLAHER	239
GEC (GENERAL ELECTRIC CO.)	73
GENERAL ELECTRIC CANADA	489
GENERAL MOTORS CONT'L	478
GENERAL MOTORS DO BRASIL	496
GENERAL MOTORS ESPAÑA	310
GENERAL MOTORS OF CANADA	40
GENERAL SEKIYU	260
GEORG FISCHER	474
GKN	214
GLAXO HOLDINGS	258
GRAND METROPOLITAN	75
GRUNDIG	423
GRUPO INDUSTRIAL ALFA	457
GUINNESS	192
H	
HACHETTE	238
HANSON TRUST	62
HAWKER SIDDELEY GROUP	241
HEINEKEN	249
HENKEL	137
HERAEUS HOLDING	327
HEWLETT-PACKARD (GERMANY)	469
HILLSDOWN HOLDINGS	141
HINDUSTAN PETROLEUM	291
HINO MOTORS	281
HITACHI	7
HITACHI ZOSEN	292
HOECHST	22
HOESCH	166
HOLDERBANK FINANCIÈRE	279
HONDA MOTOR	26
HONSHU PAPER	278
HOOGOVENS GROEP	235
HÜLS	274
HYOSUNG	206
HYUNDAI HEAVY INDUSTRIES	225
HYUNDAI MOTOR	191
I	
IBM CANADA	296
IBM DEUTSCHLAND	100
IBM ESPAÑA	492
IBM FRANCE	105
IBM JAPAN	81
IBM NEDERLAND	438
IBM U.K. HOLDINGS	118
IDEMITSU KOSAN	79
IMETAL	405
IMI	448
IMPERIAL CHEMICAL INDUSTRIES	25
IMPERIAL OIL	132
INCO	366
INDIAN OIL	63
INDÚSTRIAS VOTORANTIM	399
INI	39
INTERNATIONAL THOMSON	185
IRI	4
ISCOR	351
ISHIKAWAJIMA-HAR. HVY. IND.	116
ISUZU MOTORS	83
ITOHAM FOODS	325
IVACO	400
J	
JACOBS SUCHARD	165
JAGUAR	398
JAPAN TOBACCO	95
JEFFERSON SMURFIT GROUP	437
JOHNSON MATTHEY	358
JUJO PAPER	257
K	
KANEBO	189
KANEGAFUCHI CHEMICAL IND.	481
KANTO AUTO WORKS	364
KAO	232
KAWASAKI HEAVY INDUSTRIES	142
KAWASAKI STEEL	104
KEMIRA	343
KF INDUSTRI	267
KHD	329
KIRIN BREWERY	184
KLÖCKNER-WERKE	322
KOBE STEEL	96
KOÇ HOLDING	149
KOKUYO	495
KOMATSU	138
KONE	494
KONICA	255
KONINKLIJKE WESSANEN	370
KOOR INDUSTRIES	265
KOREA EXPLOSIVES	181
KRUPP (FRIED.)	72
KUBOTA	164
KURARAY	389
KUWAIT PETROLEUM	53
KYMMENE	426
KYOCERA	378
KYOWA HAKKO KOGYO	382
L	
LABATT (JOHN)	247
LAFARGE COPPÉE	211
L'AIR LIQUIDE	173
LIEBHERR INTERNATIONAL	439
LINDE	380
LION	214
L'ORÉAL	199
LUCAS INDUSTRIES	268
LUCKY-GOLDSTAR	32
LVMH	308
M	

ALPHABETICAL INDEX TO THE INTERNATIONAL 500

COMPANY	Sales rank
MAN	80
MANNESMANN	59
MATRA	240
MATSUSHITA ELECTRIC IND.	10
MATSUSHITA ELECTRIC WORKS	152
MAXWELL COMMUNICATION	436
MAZDA MOTOR	46
MCDERMOTT INTERNATIONAL	202
MEIJI MILK PRODUCTS	295
MEIJI SEIKA	355
MEJERISELSKABET DANMARK	432
MERCK (E.)	394
METAL BOX	387
METALLGESELLSCHAFT	85
METSA-SERLA	409
MICHELIN	74
MINOLTA CAMERA	347
MITSUBISHI CHEMICAL IND.	106
MITSUBISHI ELECTRIC	38
MITSUBISHI GAS CHEMICAL	425
MITSUBISHI HEAVY INDUSTRIES	45
MITSUBISHI METAL	163
MITSUBISHI MINING & CEMENT	363
MITSUBISHI MOTORS	56
MITSUBISHI OIL	210
MITSUBISHI PETROCHEMICAL	298
MITSUBISHI RAYON	388
MITSUI ENG. & SHIPBLDG.	418
MITSUI MINING	376
MITSUI MINING AND SMELTING	362
MITSUI PETROCHEMICAL IND.	411
MITSUI TOATSU CHEMICALS	262
MOBIL OIL FRANÇAISE	487
MOBIL OIL (GERMANY)	233
MOBIL OIL ITALIANA	459
MOLSON	467
MONTEDISON	48
MOORE	302
MORINAGA MILK INDUSTRY	346
MURATA MANUFACTURING	488
N	
NAN YA PLASTICS	455
NEC	28
NESTE	101
NESTLÉ	16
NEWS CORP.	187
NGK INSULATORS	498
NICHIREI	319
NICHIRO GYOGYO	368
NIHON CEMENT	429
NIPPONDENSO	86
NIPPON GAKKI	261
NIPPON KOKAN	82
NIPPON LIGHT METAL	266
NIPPON MEAT PACKERS	227
NIPPON MINING	162
NIPPON OIL	47
NIPPON SEIKO	383
NIPPON SHEET GLASS	477
NIPPON STEEL	29
NIPPON SUISAN	205
NISSAN DIESEL MOTOR	458
NISSAN MOTOR	13
NISSAN SHATAI	237
NISSHINBO INDUSTRIES	452
NISSHIN FLOUR MILLING	312
NISSHIN STEEL	305
NIXDORF COMPUTER	243
NOBEL INDUSTRIES	311
NOKIA	209
NORANDA	125
NORSK-HYDRO	69
NORTHERN ENGINEERING	475
NORTHERN FOODS	335
NORTHERN TELECOM	146
NOVA	375
NTN TOYO BEARING	410
O	
OERLIKON-BÜHRLE	272
OIL & NATURAL GAS	171
OJI PAPER	204
OKI ELECTRIC INDUSTRY	270
OLIVETTI	119
OMRON TATEISI ELECTRONICS	379
ÖMV	248
ONODA CEMENT	326
P	
PACIFIC DUNLOP	381
PEARSON	417
PECHINEY	99
PEMEX (PETRÓLEOS MEXICANOS)	36
PERNOD RICARD	372
PETROBRÁS	27
PETRO-CANADA	175
PETROFINA	64
PETRÓLEOS DE VENEZUELA	67
PETRONAS	208
PEUGEOT	24
PHILIPS	12
PILKINGTON BROTHERS	213
PIONEER CONRETE SERVICES	401
PIONEER ELECTRIC	286
PIRELLI	122
PLESSEY	317
POHANG IRON & STEEL	186
POLYSAR	316
PORSCHE	369
PRIMA MEAT PACKERS	442
PROCORDIA	269
PROCTER & GAMBLE (GER.)	486
PROUVOST	453
PWA	392
Q	
Q.P.	465
R	
RACAL ELECTRONICS	348
RANKS HOVIS MCDOUGALL	293
RANK XEROX	190
RAUMA-REPOLA	342
RECKITT & COLMAN	283
REDLAND	434
REED INTERNATIONAL	231
RENAULT	14
RENGO	428
REPSOL	84
RHEINISCHE BKW	404
RHEINMETALL BERLIN	393
RHÔNE-POULENC	58
RICOH	177
RMC GROUP	230
ROCHE/SAPAC	135
ROLLS-ROYCE	196
ROTHMANS INTERNATIONAL	307
ROVER GROUP	140
ROWNTREE	287
ROYAL DUTCH/SHELL GROUP	1
RTZ	124
RUHRKOHLE	42
S	
SAAB-SCANIA	98
SAARBERGWERKE	216
SABANCI (HACIOMER)	178
SABIC	450
SAGEM	431
SAINT LOUIS	357
SAINT-GOBAIN	37
SALZGITTER	161
SAMSUNG	20
SANDOZ	110
SANDVIK GROUP	324
SANKYO	285
SANYO ELECTRIC	70
SANYO-KOKUSAKU PULP	297
SAPPORO BREWERIES	424
SASOL	446
SCHERING	263
SCHLUMBERGER	160
SCHNEIDER	145
SEAGRAM	288
SEITA	472
SEKISUI CHEMICAL	246
SHARP	87
SHIN-ETSU CHEMICAL	323
SHIONOGI	396
SHISEIDO	275
SHOWA DENKO	174
SHOWA SANGYO	499
SHOWA SHELL SEKIYU	61
SIDERBRÁS	176
SIEMENS	9
SKF	218
SNECMA	273
SNOW BRAND MILK PRODUCTS	129
SOLVAY	111
SONY	71
SOURCE PERRIER	356
SSAB (SVENSKT STAL)	321
SSANGYONG	153
STATOIL	66
STC	194
STEEL AUTHORITY OF INDIA	250
STELCO	349
STORA KOPPARBERG	207
SULZER BROTHERS	215
SUMITOMO CHEMICAL	123
SUMITOMO ELECTRIC IND.	154
SUMITOMO HEAVY INDUSTRIES	336
SUMITOMO METAL INDUSTRIES	112
SUMITOMO METAL MINING	309
SUMITOMO RUBBER	331
SUNKYONG	90
SUZUKI MOTOR	131
SVENSKA CELLULOSA	280
SWEDISH MATCH	276
T	
TABACALERA	282
TAIO PAPER MANUFACTURING	480
TAIYO FISHERY	109
TAKEDA CHEMICAL	180
T&N	413
TARMAC	183
TATE & LYLE	259
TATUNG	497
TDK	256
TEIJIN	201
TEXACO (BRITAIN)	284
TEXACO CANADA	338
THOMSON	54
THORN EMI	148
THYSSEN	33
TI GROUP	451
TOA NENRYO KOGYO	159
TOPPAN PRINTING	143
TORAY INDUSTRIES	156
TOSHIBA	23
TOSOH	456
TOTAL	31
TOTO	407
TOYOBO	236
TOYODA AUTO. LOOM WORKS	333
TOYO SASH	332
TOYO SEIKAN	179
TOYO TIRE & RUBBER	464
TOYOTA AUTO BODY	360
TOYOTA MOTOR	3
TRELLEBORG	290
TÜRKIYE PETROLLERI	117
U	
UBE INDUSTRIES	212
ULTRAMAR	385
UNIGATE	229
UNILEVER	11
UNIÓN EXPLOSIVOS RIO TINTO	461
UNION INTERNATIONAL	339
UNION LAITIÈRE NORMANDE	408
UNITED BISCUITS	224
UNITIKA	337
USINOR-SACILOR	44
V	
VAAL REEFS EXPLOR. & MINING	491
VALE DO RIO DOCE	299
VALEO	320
VALMET	397
VARITY	462
VAUXHALL MOTORS	251
VEBA OEL	93
VIAG	151
VICKERS	483
VOLKSWAGEN	6
VOLVO	30
W	
WACKER-CHEMIE	470
WELLCOME	377
WHITBREAD	354
Y	
YAMAHA MOTOR	226
YAMAZAKI BAKING	271
YOKOHAMA RUBBER	328
YOSHIDA KOGYO	421
YPF	147
Z	
ZAHNRADFABRIK FRIEDRI	303
ZAMBIA INDUSTRIAL & MINING	422



THE 100 BIGGEST BANKS

THE FORTUNE DIRECTORY OF THE LARGEST BANK CORPORATIONS OUTSIDE THE U.S.

JAPANESE BANKS continue to dominate the list, as they have for the past decade. Only two of the top ten are European, Crédit Agricole (No. 7) and Banque Nationale de Paris (No. 9), both in France. The rest are Japanese. The big five—Dai-Ichi Kangyo, Sumitomo, Fuji, Mitsubishi, and Sanwa—are bigger than ever in terms of assets.

The Japanese have been aggressive worldwide lenders, especially in bank-to-bank transactions. They hold some $1.2 trillion of such loans, nearly half the global total. But they have been quiet in one area where European banks have been frenetic, mergers and acquisitions. To prepare for the European Economic Community's sweeping financial deregulation in 1992, the Continent's major banks have been charging across borders. France's Crédit Lyonnais (No. 13) bought Holland's Nederlandse Credietbank last year. Amsterdam-Rotterdam (No. 44) plans a merger with Générale de Banque of Belgium (No. 55). Germany's Deutsche Bank (No. 11) acquired BankAmerica's network of some 100 branches in Italy.

Since Tokyo's giants are eager to expand in Europe, some analysts have been puzzled by their absence in the takeover game. There appear to be two reasons. Foreign acquisitions would require huge outlays of precious yen, while returns would be valued in weaker currencies. In addition, Japanese bankers want to avoid actions that might provoke a xenophobic backlash. But don't bet such attitudes will never change.

Some grand old names in British banking, including Barclays (No. 14) and Lloyds (No. 40), took multimillion-dollar write-downs on Third World debt. That clobbered their earnings, but set the stage for much better performance next year. Only about 3% of Barclays' total loans are to Third World borrowers now, compared with 12% for major U.S. banks.

Sweden's Svenska Handelsbanken (No. 91) returned to the list after a year's lapse, as did Spain's Banco Hispano Americano (No. 99). Trustees Savings Bank of Britain joined the top 100 as No. 89 along with Belgium's Kredietbank, which became No. 96. Dropping off the list were Bank Hapoalim and Bank Leumi in Israel, Australia's Commonwealth Banking Corp., Banco di Sicilia of Italy, and Bank of Fukuoka in Japan.

The Bank of China appears for the first time, though not because it has suddenly grown huge. Since it handles all commercial banking in the People's Republic as well as central bank functions, it has doubtless been big enough to make the grade for a long time. This is the first year the government has been forthcoming with figures, possibly because the bank reported a profit of more than $1 billion. Such openness did not extend to the land of *glasnost.* FORTUNE's request for information from Vneshtorgbank, the Soviet state bank rumored to have assets of nearly $40 billion, produced a crisp *nyet.*

–Jonas Bernard Blank
and Constance A. Gustke

RANK BY ASSETS		COMPANY
1987	1986	
1	1	DAI-ICHI KANGYO BANK[7]
2	3	SUMITOMO BANK[7]
3	2	FUJI BANK[7]
4	4	MITSUBISHI BANK[7]
5	5	SANWA BANK[7]
6	6	INDUSTRIAL BANK OF JAPAN[8,7]
7	7	CRÉDIT AGRICOLE[10]
8	11	NORINCHUKIN BANK[7]
9	8	BANQUE NATIONALE DE PARIS[10]
10	14	MITSUBISHI TRUST & BANKING[8,7]
11	12	DEUTSCHE BANK[11]
12	9	TOKAI BANK[7]
13	13	CRÉDIT LYONNAIS[10]
14	20	BARCLAYS BANK
15	17	NATIONAL WESTMINSTER BANK
16	10	MITSUI BANK[7,9]
17	16	SUMITOMO TRUST & BANKING[8]
18	19	SOCIÉTÉ GÉNÉRALE
19	15	LONG-TERM CREDIT BANK OF JAPAN[8]
20	22	MITSUI TRUST & BANKING[8,7]
21	21	BANK OF TOKYO[7]
22	18	TAIYO KOBE BANK[9]
23	24	YASUDA TRUST & BANKING[8,7]
24	25	DRESDNER BANK[11]
25	23	DAIWA BANK[8,7]
26	27	UNION BANK OF SWITZERLAND[9]
27	26	CIE FINANCIÈRE DE PARIBAS
28	•	BANK OF CHINA[10]
29	29	SWISS BANK CORP.[9]
30	30	TOYO TRUST & BANKING[8,7]
31	28	HONGKONG & SHANGHAI BANKING
32	34	COMMERZBANK[11]
33	33	WESTDEUTSCHE LANDESBANK[11]
34	35	BANCA NAZIONALE DEL LAVORO[10]
35	31	NIPPON CREDIT BANK[8,7]
36	37	BAYERISCHE VEREINSBANK[11]
37	32	MIDLAND BANK
38	36	KYOWA BANK[8,7]
39	40	ALGEMENE BANK NEDERLAND
40	39	LLOYDS BANK
41	43	CRÉDIT SUISSE[7]
42	49	BAYERISCHE LANDESBANK[11]
43	42	RABOBANK
44	44	AMSTERDAM-ROTTERDAM BANK
45	50	DEUTSCHE GENOSSENSCHAFTSBANK[11]
46	47	BAYERISCHE HYPOTHEKEN & WECHSEL[11]
47	45	SAITAMA BANK[8,7]
48	38	ROYAL BANK OF CANADA[12]
49	52	SHOKO CHUKIN BANK[7,10]
50	41	BANCO DO BRASIL[10]

COUNTRY	ASSETS[1]			DEPOSITS[2]		LOANS[3]	NET INCOME[4]	STOCKHOLDERS' EQUITY[5]	OFFICES[4]	EMPLOYEES
	$ Millions	Percent change in U.S. dollars	Percent change in local currency	$ Millions	Rank	$ Millions	$ Millions	$ Millions	Number	Number
JAPAN	288,337.3	14.6	8.8	211,084.0	1	160,414.6	627.9	4,823.2	386	19,293
JAPAN	270,212.1	26.0	19.6	194,108.0	2	146,570.6	352.0	5,237.7	371	16,610
JAPAN	263,069.1	19.6	13.5	187,037.5	3	144,588.4	547.8	5,122.7	305	14,805
JAPAN	245,333.0	17.2	11.3	177,660.4	4	135,738.5	635.9	4,842.5	250	14,296
JAPAN	238,109.4	18.9	12.8	174,823.6	6	140,834.6	555.6	4,377.6	287	14,827
JAPAN	222,463.3	33.1	26.3	175,630.6	5	115,773.6	375.2	5,172.4	32	5,363
FRANCE	214,864.6	37.5	14.9	151,101.4	9	166,544.7	359.0	5,956.8	9,993	73,939
JAPAN	186,334.3	33.7	9.7	168,173.6	7	82,634.3	140.5	958.0	39	3,163
FRANCE	183,086.3	27.5	6.5	128,364.5	15	136,530.0	471.5	4,653.4	2,574	58,452
JAPAN	173,398.8	30.9	24.2	141,951.0	11	75,932.8	442.4	2,562.2	61	6,164
W. GERMANY	170,831.1	27.7	4.3	153,952.6	8	137,212.0	366.0	7,160.1	1,498	54,579
JAPAN	169,341.1	18.8	12.8	128,490.5	14	91,455.9	298.8	3,007.1	246	12,795
FRANCE	168,723.0	26.2	5.4	123,624.4	17	124,737.4	369.8	4,448.0	N.A.	58,181
BRITAIN	165,564.4	41.5	11.2	139,301.8	12	139,533.8	22.9	7,766.5	4,200	113,200
BRITAIN	164,132.9	32.9	4.4	144,003.6	10	141,146.4	724.5	9,235.7	3,735	102,000
JAPAN	163,254.2	16.5	10.6	120,091.9	19	93,659.9	336.3	2,883.6	260	10,292
JAPAN	154,276.9	23.9	17.6	136,253.4	13	67,054.7	422.7	2,437.9	64	6,187
FRANCE	153,367.0	30.6	9.1	112,539.4	21	117,433.2	445.8	2,743.3	2,200	43,980
JAPAN	152,196.6	21.0	14.9	117,152.4	20	92,534.5	327.8	3,284.7	28	3,394
JAPAN	150,620.7	30.4	23.8	127,814.4	16	65,887.4	317.4	1,828.6	68	6,030
JAPAN	145,270.0	25.4	2.8	102,452.0	26	75,256.9	345.1	3,010.8	250	13,397
JAPAN	144,954.4	19.8	13.8	109,729.7	23	89,693.0	254.1	2,309.3	365	13,737
JAPAN	132,447.1	27.5	21.0	109,845.2	22	60,848.9	255.1	1,544.1	61	5,372
W. GERMANY	131,740.7	28.7	5.1	122,085.7	18	106,697.0	249.8	4,062.3	1,403	38,116
JAPAN	130,389.0	23.6	17.4	109,576.6	24	67,176.6	212.9	2,135.3	200	9,411
SWITZERLAND	126,162.7	33.8	5.4	106,471.8	25	102,158.5	504.7	7,665.2	269	20,881
FRANCE	122,550.7	29.8	8.5	75,101.9	39	89,196.3	286.9	3,334.5	N.A.	27,500
CHINA	118,445.5	28.1	28.1	52,546.0	58	43,639.8	1,079.3	4,544.4	522	31,000
SWITZERLAND	114,974.3	34.6	6.1	97,636.6	27	91,919.3	437.3	6,890.1	232	16,828
JAPAN	111,027.5	33.6	26.8	96,238.8	29	52,136.0	232.1	1,333.2	63	4,825
HONG KONG	107,884.6	17.5	17.1	96,009.8	30	55,038.8	460.7	4,290.0	1,300	51,950
W. GERMANY	102,960.9	33.7	9.2	96,795.3	28	85,805.3	234.2	3,376.6	882	26,640
W. GERMANY	97,086.7	26.0	2.9	89,819.6	31	78,166.8	56.0	2,608.4	18	7,531
ITALY	96,837.9	27.6	10.6	81,898.3	33	69,108.6	104.1	3,328.4	446	28,602
JAPAN	96,774.6	18.7	12.6	77,583.4	35	59,172.3	175.4	1,713.5	24	2,214
W. GERMANY	95,259.1	30.8	6.8	89,324.4	32	82,805.3	121.8	2,113.1	463	14,270
BRITAIN	91,376.7	15.9	(8.9)	78,606.6	34	74,578.1	(644.2)	4,877.2	2,080	58,778
JAPAN	91,118.5	22.1	15.8	69,693.1	44	53,413.3	221.9	1,948.1	237	8,727
NETHERLANDS	85,374.1	26.5	2.9	75,946.8	37	49,778.2	255.2	3,307.9	940	29,314
BRITAIN	84,700.3	19.5	(6.1)	76,549.0	36	71,939.6	(372.1)	4,509.4	3,070	76,186
SWITZERLAND	84,341.2	31.2	3.4	71,775.3	43	65,952.4	368.9	5,200.8	202	15,020
W. GERMANY	83,601.9	39.3	13.7	69,668.5	45	66,493.3	81.5	1,834.7	7	4,362
NETHERLANDS	82,362.8	28.1	4.2	75,552.3	38	59,953.0	341.6	4,744.2	3,364	32,646
NETHERLANDS	81,454.4	27.3	3.5	73,403.5	42	41,152.2	236.4	2,890.2	798	23,709
W. GERMANY	81,115.4	39.4	13.8	73,524.7	41	64,856.9	77.1	1,777.5	23	4,717
W. GERMANY	80,394.5	28.5	4.9	74,767.8	40	71,622.8	135.1	2,333.0	489	13,171
JAPAN	79,167.3	25.8	19.4	61,143.5	49	44,775.8	160.9	1,680.0	205	8,834
CANADA	77,625.1	8.4	2.6	65,196.0	47	52,645.9	(193.3)	3,315.5	1,517	42,839
JAPAN	76,241.7	32.4	8.6	68,299.5	46	61,286.6	40.6	1,789.5	97	6,408
BRAZIL	75,707.8	12.7	446.4	26,343.0	93	67,354.4	759.8	5,173.3	3,689	128,528

THE 100 BIGGEST COMMERCIAL BANKING COMPANIES

RANK BY ASSETS		COMPANY	COUNTRY	ASSETS[1]			DEPOSITS[2]		LOANS[3]	NET INCOME[4]
1987	1986			$ Millions	Percent change in U.S. dollars	Percent change in local currency	$ Millions	—Rank	$ Millions	$ Millions
51	48	ISTITUTO BANCARIO SAN PAOLO DI TORINO[10]	ITALY	74,066.1	23.3	6.8	57,985.5	53	33,723.3	435.9
52	62	CHUO TRUST & BANKING[8,9]	JAPAN	69,767.6	42.8	35.6	63,563.4	48	24,014.8	77.6
53	55	BANK OF YOKOHAMA[8,9]	JAPAN	67,445.2	25.2	18.8	52,713.2	57	40,962.5	116.5
54	51	CANADIAN IMPERIAL BANK OF COMMERCE[12]	CANADA	67,144.0	15.5	9.3	54,711.8	56	48,312.8	(47.3)
55	59	GÉNÉRALE DE BANQUE	BELGIUM	66,113.8	27.5	4.7	60,969.8	50	44,436.9	172.4
56	68	ZENSHINREN BANK[7]	JAPAN	65,090.1	52.8	25.3	59,733.8	52	36,245.1	144.4
57	60	CARIPLO	ITALY	65,019.1	27.4	10.3	51,625.1	59	29,767.7	185.3
58	61	NORDDEUTSCHE LANDESBANK[10,11]	W. GERMANY	64,978.1	29.5	5.8	59,824.2	51	56,889.9	34.2
59	58	CIE FINANCIÈRE DE SUEZ	FRANCE	64,534.4	23.5	3.2	37,972.7	74	43,918.7	354.9
60	46	BANK OF MONTREAL[12]	CANADA	63,993.1	2.1	(3.4)	54,766.9	54	39,931.8	(263.4)
61	53	BANCA COMMERCIALE ITALIANA[10]	ITALY	63,040.3	13.4	(1.7)	54,731.1	55	42,659.7	279.3
62	67	CRÉDIT INDUSTRIEL ET COMMERCIAL[10]	FRANCE	63,010.4	43.2	19.7	43,353.8	67	43,250.8	102.0
63	56	MONTE DEI PASCHI DI SIENA[10]	ITALY	62,967.4	17.4	1.7	51,603.6	60	50,827.0	244.3
64	54	HOKKAIDO TAKUSHOKU BANK[7,9]	JAPAN	61,670.7	13.3	7.6	46,547.2	64	32,915.7	91.4
65	66	BANCO DI NAPOLI[9,10]	ITALY	59,802.4	32.5	14.8	50,619.3	61	39,768.9	48.0
66	57	BANCO DI ROMA[10]	ITALY	56,813.1	7.7	(6.7)	48,674.1	62	41,480.2	5.3
67	63	STANDARD CHARTERED BANK	BRITAIN	56,077.0	17.4	(7.7)	48,022.5	63	40,556.7	(663.7)
68	65	BANK OF NOVA SCOTIA[12]	CANADA	54,269.7	17.9	11.6	46,194.4	65	36,528.9	(233.2)
69	70	GROUPE DES BANQUES POPULAIRES	FRANCE	53,878.2	35.9	13.5	36,655.2	75	36,797.9	165.0
70	69	BANK MELLI IRAN[10,13]	IRAN	53,380.6	29.5	14.5	38,520.5	73	N.A.	11.8
71	64	CREDITO ITALIANO[10]	ITALY	51,682.0	9.7	(5.0)	45,492.8	66	35,784.4	144.5
72	71	WESTPAC BANKING[8]	AUSTRALIA	49,852.4	30.8	15.8	30,042.1	83	30,682.3	280.9
73	74	HESSISCHE LANDESBANK[11]	W. GERMANY	47,379.9	29.2	5.5	38,924.0	71	35,294.2	32.6
74	72	STATE BANK OF INDIA[10]	INDIA	46,825.1	23.2	19.7	30,176.5	82	20,150.6	43.4
75	77	AUSTRALIA & NEW ZEALAND BANKING[8]	AUSTRALIA	46,291.7	30.2	15.3	27,026.9	91	24,850.7	273.9
76	78	NEDERLANDSCHE MIDDENSTANDSBANK	NETHERLANDS	45,356.5	37.8	12.1	41,916.2	68	30,681.9	109.1
77	80	CRÉDIT COMMUNAL DE BELGIQUE	BELGIUM	45,337.9	38.7	14.0	40,690.4	69	28,965.2	34.4
78	76	BANQUE FRANÇAISE DU COMMERCE	FRANCE	44,799.0	25.4	4.8	15,839.7	99	26,426.4	13.2
79	75	BANK BRUSSELS LAMBERT[8]	BELGIUM	43,607.6	20.7	9.7	38,630.2	72	16,209.9	93.8
80	83	CRÉDIT MUTUEL	FRANCE	43,477.6	39.6	16.6	33,126.9	79	28,640.3	172.9
81	79	CREDITANSTALT-BANKVEREIN[10,11]	AUSTRIA	42,269.9	28.8	5.1	39,939.5	70	22,864.3	41.7
82	82	ASLK-CGER	BELGIUM	41,627.8	33.5	9.7	34,898.6	77	40,258.1	79.5
83	73	TORONTO-DOMINION BANK[12]	CANADA	41,426.4	12.0	6.0	34,113.0	78	30,626.8	39.7
84	87	SKANDINAVISKA ENSKILDA BANKEN	SWEDEN	40,325.8	42.3	22.3	28,073.5	87	24,054.4	106.5
85	86	CHIBA BANK[8]	JAPAN	40,104.0	35.0	28.1	31,620.7	80	27,055.3	95.6
86	85	HOKURIKU BANK[8]	JAPAN	38,569.6	25.8	19.4	30,331.5	81	27,576.9	91.2
87	81	CRÉDIT COMMERCIAL DE FRANCE	FRANCE	38,395.1	18.4	(1.1)	27,088.2	90	27,092.0	72.0
88	84	BANK FÜR GEMEINWIRTSCHAFT[11]	W. GERMANY	37,753.1	21.3	(1.0)	35,225.5	76	29,437.7	56.1
89	•	TRUSTEES SAVINGS BANK GROUP[12]	BRITAIN	36,018.5	90.3	49.5	25,828.6	95	12,414.4	286.2
90	91	BANCO CENTRAL	SPAIN	35,237.7	32.1	8.3	26,252.0	94	15,518.3	260.6
91	•	SVENSKA HANDELSBANKEN	SWEDEN	34,954.4	50.5	29.4	27,422.8	89	18,382.1	103.3
92	88	SHIZUOKA BANK[8,9]	JAPAN	34,351.2	21.7	15.5	29,329.7	84	23,026.2	98.5
93	89	JOYO BANK[8]	JAPAN	34,032.3	21.1	15.0	28,945.9	85	24,354.2	88.2
94	92	NATIONAL AUSTRALIA BANK[8]	AUSTRALIA	33,293.4	25.1	10.8	18,509.2	98	26,188.5	220.9
95	96	SPARBANKERNAS BANK	SWEDEN	32,404.0	26.2	8.5	9,000.2	100	25,241.8	5.7
96	•	KREDIETBANK[7]	BELGIUM	31,893.6	56.1	21.3	28,592.9	86	18,570.8	85.5
97	95	ASHIKAGA BANK[8]	JAPAN	31,759.5	22.3	16.1	27,730.0	88	22,576.5	96.8
98	93	POST-OCH KREDITBANKEN[10]	SWEDEN	31,311.2	18.8	2.1	23,126.6	96	18,848.3	115.7
99	•	BANCO HISPANO AMERICANO	SPAIN	31,296.5	37.8	12.9	20,654.2	97	16,562.0	22.6
100	100	ROYAL BANK OF SCOTLAND[8]	BRITAIN	31,064.9	29.4	15.2	26,972.3	92	26,438.9	199.7
		TOTALS		9,362,623.6			7,400,952.3		5,948,580.1	19,738.6

STOCK-HOLDERS' EQUITY[5] $ Millions	OFFICES[6] Number	EMPLOY-EES Number
3,182.7	681	18,234
411.1	55	4,037
1,581.2	206	6,984
3,232.5	1,534	33,874
1,448.8	1,157	15,875
951.1	17	953
3,604.4	523	14,293
1,301.3	213	6,200
3,526.0	607	18,702
2,630.7	1,220	34,482
3,389.4	550	21,524
1,555.5	1,425	27,000
3,351.9	775	16,659
989.9	223	6,310
1,008.9	504	13,631
1,414.9	370	14,904
1,352.8	807	33,422
2,141.3	1,170	26,187
1,639.1	1,851	28,445
2,505.4	2,000	19,953
2,552.2	501	17,333
2,116.3	1,953	44,947
938.5	7	2,802
834.3	11,361	284,802
2,224.7	1,690	41,187
1,296.0	486	11,844
700.0	1,351	3,532
232.6	30	2,765
830.2	1,000	15,784
2,132.9	4,400	21.620
1,596.5	343	10,110
1,170.8	1,139	10,187
2,634.4	963	21,710
735.8	347	9,149
1,157.1	165	5,050
1,045.1	184	5,233
747.6	416	12,314
1,312.5	279	8,960
4,141.4	1,620	32,050
1,670.2	2,856	24,073
441.6	451	6,447
1,370.4	192	5,556
1,120.4	158	5,135
2,036.1	1,661	24,333
119.1	1	1,211
760.6	853	11,042
1,061.0	146	4,311
457.6	138	4,653
1,404.3	1,410	15,044
1,708.2	856	19,557
269,910.0		2,389,292

RETURN ON STOCKHOLDERS' EQUITY

THE TEN HIGHEST

	RANK	
POST-OCH KREDITBANKEN	98	25.3%
BANK OF CHINA	28	23.8
SVENSKA HANDELSBANKEN	91	23.4
CHUO TRUST & BANKING	52	18.9
TOYO TRUST & BANKING	30	17.4
MITSUI TRUST & BANKING	20	17.4
SUMITOMO TRUST & BANKING	17	17.3
MITSUBISHI TRUST & BANKING	10	17.3
YASUDA TRUST & BANKING	23	16.5
CIE FINANCIÈRE DE PARIBAS	27	16.4
THE MEDIAN		8.4

CHANGE IN NET INCOME

THE TEN BIGGEST INCREASES*

	RANK	
POST-OCH KREDITBANKEN	98	223.7%
SPARBANKERNAS BANK	95	211.0
BANK FÜR GEMEINWIRTSCHAFT	88	177.2
BANCO DO BRASIL	50	173.7
AUSTRALIA & NEW ZEALAND	75	144.2
SKANDINAVISKA ENSKILDA	84	126.6
NORDDEUTSCHE LANDESBANK	58	103.4
TAIYO KOBE BANK	22	91.6
KYOWA BANK	38	87.6
YASUDA TRUST & BANKING	23	82.2

THE TEN BIGGEST DECREASES*

BARCLAYS BANK	14	96.8%
BANCO DI ROMA	66	92.9
TORONTO-DOMINION BANK	83	86.3
BANCO HISPANO AMERICANO	99	79.3
BANK MELLI IRAN	70	68.1
BANCA NAZIONALE DEL LAVORO	34	45.3
SUMITOMO BANK	2	34.2
DEUTSCHE BANK	11	24.7
CREDITO ITALIANO	71	22.3
CRÉDIT INDUSTRIEL	62	21.2

*Percent increase or decrease of net income
Does not include money losers

ASSETS PER EMPLOYEE

THE TEN HIGHEST

	RANK	
ZENSHINREN BANK	56	$68,300,212
NORINCHUKIN BANK	8	58,910,623
LONG-TERM CREDIT BANK	19	44,842,841
NIPPON CREDIT BANK	35	43,710,292
INDUSTRIAL BANK OF JAPAN	6	41,481,138
MITSUBISHI TRUST & BANK	10	28,130,889
SPARBANKERNAS BANK	95	26,758,026
MITSUI TRUST & BANKING	20	24,978,565
SUMITOMO TRUST & BANKING	17	24,935,657
YASUDA TRUST & BANKING	23	24,655,080

THE FIVE LOWEST

TRUSTEES SAVINGS BANK	89	1,123,823
LLOYDS BANK	40	1,111,756
WESTPAC BANKING	72	1,109,137
BANCO DO BRASIL	50	589,037
STATE BANK OF INDIA	74	164,413
THE MEDIAN		$4,387,239

FOOTNOTES TO THE BANKS

● Not on last year's list.
N.A. Not available.

[1] Asset figures have been converted into U.S. dollars using the market rate at each bank's fiscal year-end, which is December 31, 1987, unless otherwise noted. Chuo Trust, Daiwa, Mitsubishi Trust, Mitsui Trust, Sumitomo Trust, Toyo Trust, and Yasuda Trust include holdings of major trusts in their assets.

[2] Deposit figures have been converted into U.S. dollars using the market rate at each bank's fiscal year-end. Figures for West German banks include their own bonds; so do figures for Bank of Tokyo, Industrial Bank of Japan, Long-Term Credit Bank of Japan, and Norinchunkin Bank.

[3] Loan figures have been converted into U.S. dollars using the market rate at each bank's fiscal year-end. Figures include loans to banks and money at call or available on short notice.

[4] Net income figures have been converted into U.S. dollars using the average rate in the official exchange market during the bank's fiscal year. Net income is after taxes and excludes minority interest.

[5] Stockholders' equity figures have been converted into U.S. dollars using the market rate at each bank's fiscal year-end. Equity is the sum of capital stock, surplus, and retained earnings.

[6] Includes main office, branches, and agencies.

[7] Figures are for fiscal year ended March 31, 1987.

[8] Figures are for fiscal year ended September 30, 1987.

[9] Figures are for parent company only.

[10] Government-owned.

[11] Excludes some subsidiaries more than 50% owned.

[12] Figures are for fiscal year ended October 31, 1987.

[13] Figures are for fiscal year ended March 20, 1987.

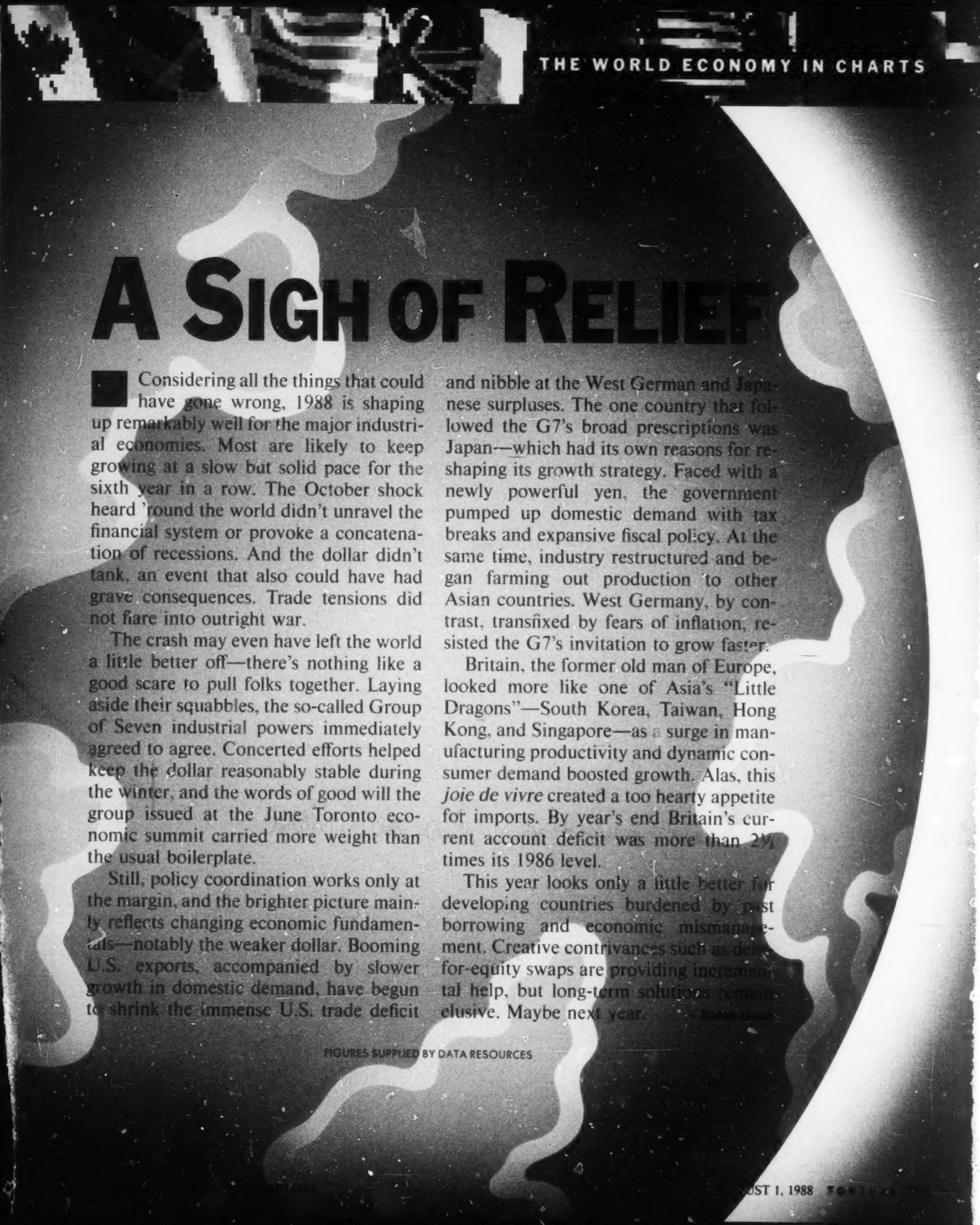
THE 100 BIGGEST COMMERCIAL BANKING COMPANIES

THE BANKS BY COUNTRY

	1-50	51-100	Total	Largest company	Assets $millions	Rank
AUSTRALIA	0	3	3	WESTPAC BANKING	49,852.4	72
AUSTRIA	0	1	1	CREDITANSTALT-BANKVEREIN	42,269.9	81
BELGIUM	0	5	5	GÉNÉRALE DE BANQUE	66,113.8	55
BRAZIL	1	0	1	BANCO DO BRASIL	75,707.8	50
BRITAIN	4	3	7	BARCLAYS BANK	165,564.4	14
CANADA	1	4	5	ROYAL BANK OF CANADA	77,625.1	48
CHINA	1	0	1	BANK OF CHINA	118,445.5	28
FRANCE	5	6	11	CRÉDIT AGRICOLE	214,864.6	7
HONG KONG	1	0	1	HONGKONG & SHANGHAI BANKING	107,884.6	31
INDIA	0	1	1	STATE BANK OF INDIA	46,825.1	74
IRAN	0	1	1	BANK MELLI IRAN	53,380.6	70
ITALY	1	7	8	BANCA NAZIONALE DEL LAVORO	96,837.9	34
JAPAN	22	9	31	DAI-ICHI KANGYO BANK	288,337.3	1
NETHERLANDS	3	1	4	ALGEMENE BANK NEDERLAND	85,374.1	39
SPAIN	0	2	2	BANCO CENTRAL	35,237.7	90
SWEDEN	0	4	4	SKANDINAVISKA ENSKILDA BANKEN	40,325.8	84
SWITZERLAND	3	0	3	UNION BANK OF SWITZERLAND	126,162.7	26
W. GERMANY	8	3	11	DEUTSCHE BANK	170,831.1	11

INDEX TO THE BIGGEST COMMERCIAL BANKING COMPANIES OUTSIDE THE U.S.

Company	Rank
ALGEMENE BANK NEDERLAND	39
AMSTERDAM-ROTTERDAM BANK	44
ASHIKAGA BANK	97
ASLK-CGER	82
AUSTRALIA & NEW ZEALAND BANKING	75
BANCA COMMERCIALE ITALIANA	61
BANCA NAZIONALE DEL LAVORO	34
BANCO CENTRAL	90
BANCO DI NAPOLI	65
BANCO DI ROMA	66
BANCO DO BRASIL	50
BANCO HISPANO AMERICANO	99
BANK FÜR GEMEINWIRTSCHAFT	88
BANK MELLI IRAN	70
BANK OF CHINA	28
BANK OF MONTREAL	60
BANK OF NOVA SCOTIA	68
BANK OF TOKYO	21
BANK OF YOKOHAMA	53
BANQUE BRUXELLES LAMBERT	79
BANQUE FRANÇAISE DU COMMERCE	78
BANQUE NATIONALE DE PARIS	9
BARCLAYS BANK	14
BAYERISCHE VEREINSBANK	36
BAYERISCHE LANDESBANK	42
BAYERISCHE HYPOTHEKEN & WECHSEL	46
CANADIAN IMPERIAL BANK OF COMMERCE	54
CARIPLO	57
CHIBA BANK	85
CHUO TRUST & BANKING	52
CIE FINANCIÈRE DE SUEZ	59
CIE FINANCIÈRE DE PARIBAS	27
COMMERZBANK	32
CREDITANSTALT-BANKVEREIN	81
CRÉDIT AGRICOLE	7
CRÉDIT COMMERCIAL DE FRANCE	87
CRÉDIT COMMUNAL DE BELGIQUE	77
CRÉDIT INDUSTRIEL ET COMMERCIAL	62
CRÉDIT LYONNAIS	13
CRÉDIT MUTUEL	80
CRÉDIT SUISSE	41
CREDITO ITALIANO	71
DAI-ICHI KANGYO BANK	1
DAIWA BANK	25
DEUTSCHE GENOSSENSCHAFTSBANK	45
DEUTSCHE BANK	11
DRESDNER BANK	24
FUJI BANK	3
GÉNÉRALE DE BANQUE	55
GROUPE DES BANQUES POPULAIRES	69
HESSISCHE LANDESBANK	73
HOKKAIDO TAKUSHOKU BANK	64
HOKURIKU BANK	86
HONGKONG & SHANGHAI BANKING	31
INDUSTRIAL BANK OF JAPAN	6
ISTITUTO BANCARIO SAN PAOLO DI TORINO	51
JOYO BANK	93
KREDIETBANK	96
KYOWA BANK	38
LLOYDS BANK	40
LONG-TERM CREDIT BANK OF JAPAN	19
MIDLAND BANK	37
MITSUBISHI BANK	4
MITSUBISHI TRUST & BANKING	10
MITSUI BANK	16
MITSUI TRUST & BANKING	20
MONTE DEI PASCHI DI SIENA	63
NATIONAL AUSTRALIA BANK	94
NATIONAL WESTMINSTER BANK	15
NEDERLANDSCHE MIDDENSTANDSBANK	76
NIPPON CREDIT BANK	35
NORDDEUTSCHE LANDESBANK	58
NORINCHUKIN BANK	8
POST-OCH KREDITBANKEN	98
RABOBANK	43
ROYAL BANK OF CANADA	48
ROYAL BANK OF SCOTLAND	100
SAITAMA BANK	47
SANWA BANK	5
SHIZUOKA BANK	92
SHOKO CHUKIN BANK	49
SKANDINAVISKA ENSKILDA BANKEN	84
SOCIÉTÉ GÉNÉRALE	18
SPARBANKERNAS BANK	95
STANDARD CHARTERED BANK	67
STATE BANK OF INDIA	74
SUMITOMO BANK	2
SUMITOMO TRUST & BANKING	17
SVENSKA HANDELSBANKEN	91
SWISS BANK CORP.	29
TAIYO KOBE BANK	22
TOKAI BANK	12
TORONTO-DOMINION BANK	83
TOYO TRUST & BANKING	30
TRUSTEES SAVINGS BANK GROUP	89
UNION BANK OF SWITZERLAND	26
WESTDEUTSCHE LANDESBANK	33
WESTPAC BANKING	72
YASUDA TRUST & BANKING	23
ZENSHINREN BANK	56



A SIGH OF RELIEF

■ Considering all the things that could have gone wrong, 1988 is shaping up remarkably well for the major industrial economies. Most are likely to keep growing at a slow but solid pace for the sixth year in a row. The October shock heard 'round the world didn't unravel the financial system or provoke a concatenation of recessions. And the dollar didn't tank, an event that also could have had grave consequences. Trade tensions did not flare into outright war.

The crash may even have left the world a little better off—there's nothing like a good scare to pull folks together. Laying aside their squabbles, the so-called Group of Seven industrial powers immediately agreed to agree. Concerted efforts helped keep the dollar reasonably stable during the winter, and the words of good will the group issued at the June Toronto economic summit carried more weight than the usual boilerplate.

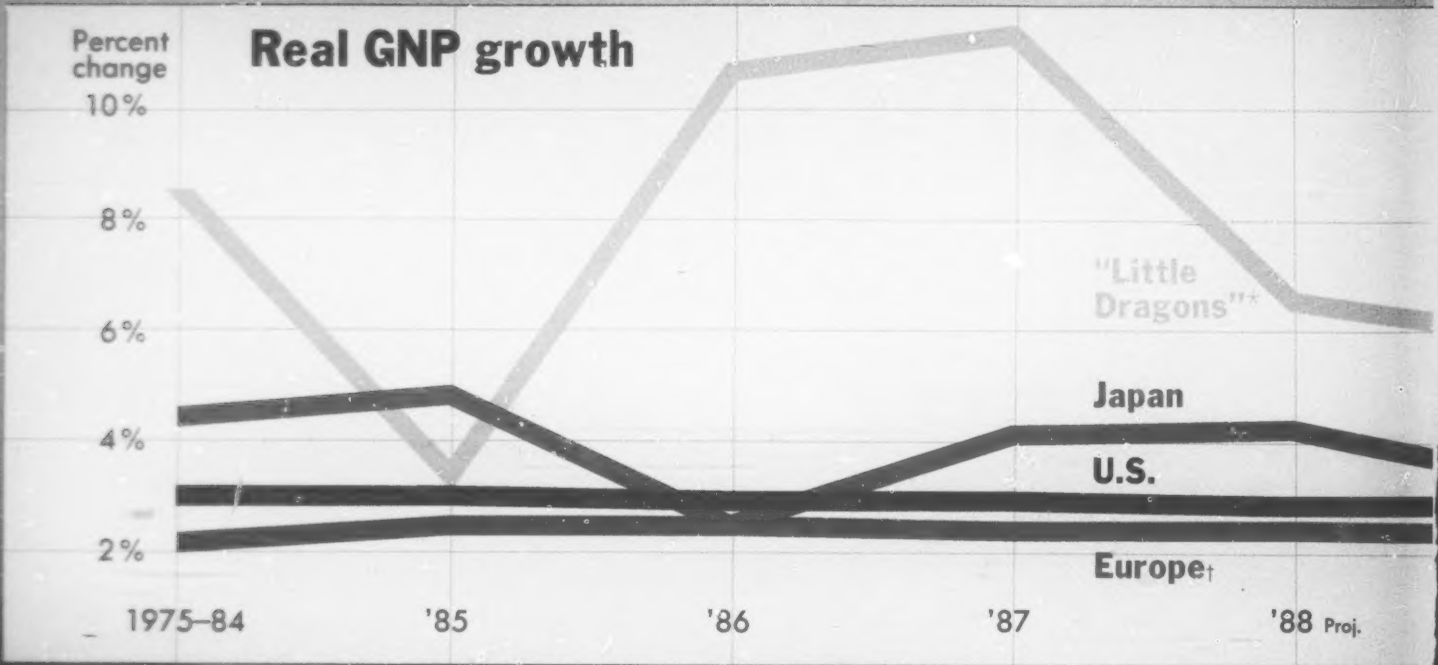
Still, policy coordination works only at the margin, and the brighter picture mainly reflects changing economic fundamentals—notably the weaker dollar. Booming U.S. exports, accompanied by slower growth in domestic demand, have begun to shrink the immense U.S. trade deficit and nibble at the West German and Japanese surpluses. The one country that followed the G7's broad prescriptions was Japan—which had its own reasons for reshaping its growth strategy. Faced with a newly powerful yen, the government pumped up domestic demand with tax breaks and expansive fiscal policy. At the same time, industry restructured and began farming out production to other Asian countries. West Germany, by contrast, transfixed by fears of inflation, resisted the G7's invitation to grow faster.

Britain, the former old man of Europe, looked more like one of Asia's "Little Dragons"—South Korea, Taiwan, Hong Kong, and Singapore—as a surge in manufacturing productivity and dynamic consumer demand boosted growth. Alas, this *joie de vivre* created a too hearty appetite for imports. By year's end Britain's current account deficit was more than 2½ times its 1986 level.

This year looks only a little better for developing countries burdened by past borrowing and economic mismanagement. Creative contrivances such as debt-for-equity swaps are providing incremental help, but long-term solutions remain elusive. Maybe next year. —Rahul Jacob

FIGURES SUPPLIED BY DATA RESOURCES

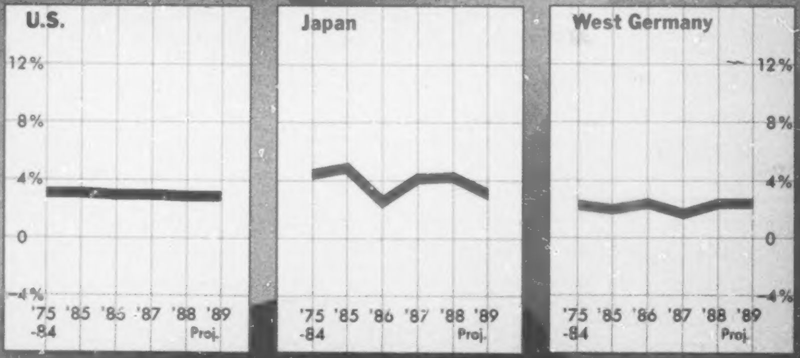
THE ECONOMIES

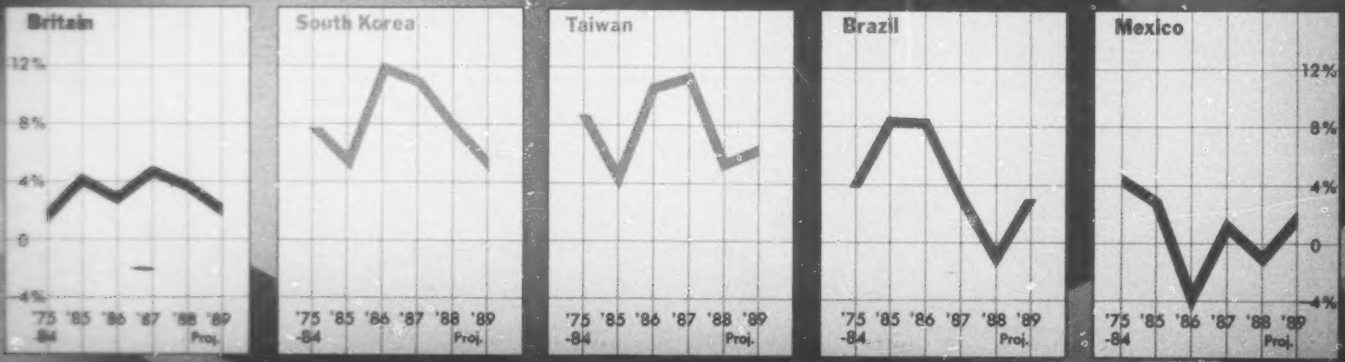


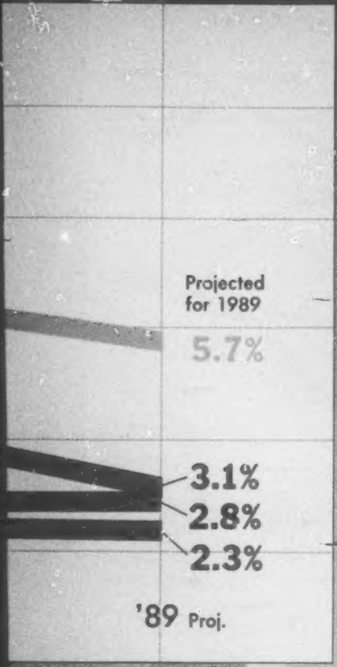
[illegible] Kong, Singapore. † West Germany, Britain, France, Italy.

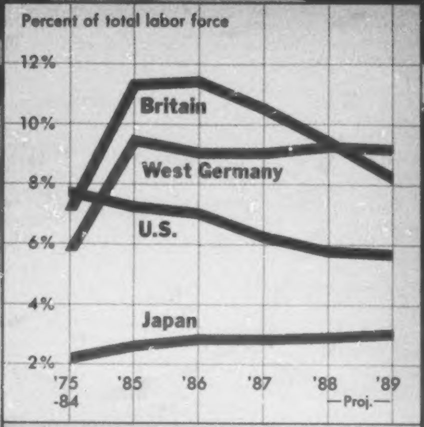
Real GNP Growth

■ Asia's fast-moving "Little Dragons" remain at the head of the pack, but their progress will slow sharply this year as exports slacken. GNP growth rates are converging for Japan and the U.S. but have diverged within the European community. Britain's 4.7% spurt last year left the others gaping, and even this year's slower rate will be half again as fast as that of West Germany. The Germans have boosted their growth, but are still a great disappointment to trading partners who want Germany to resume its old role as engine for the rest of Europe.



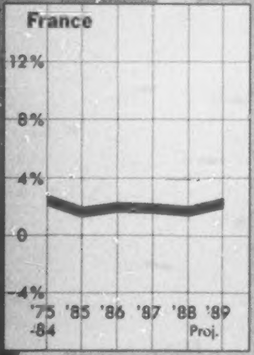


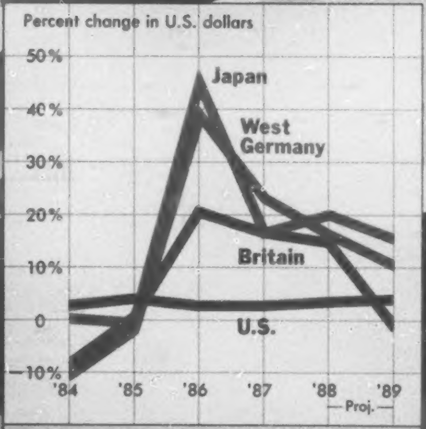




Unemployment

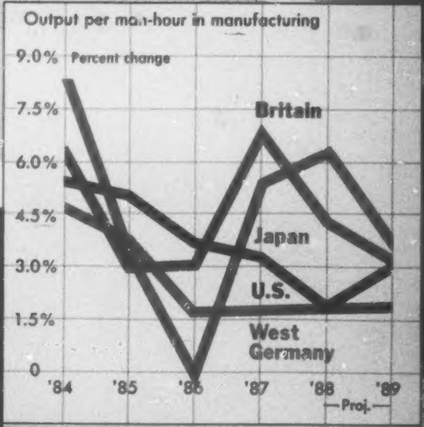
■ The U.S. keeps churning out new jobs; last winter unemployment fell to a 14-year low. Britain's rate, unlike most others in Europe, is heading down.





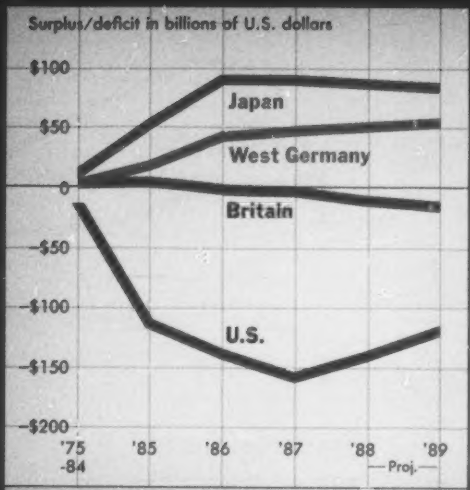
Unit Labor Costs

■ The weak dollar has driven competitors' relative unit labor costs skyward, helping to make the U.S. the world's low-cost producer in many industries.



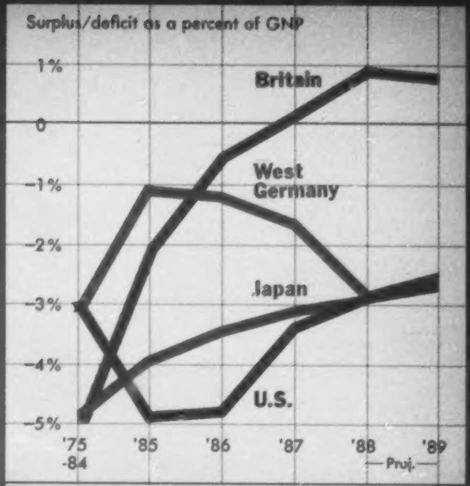
Productivity

■ Britain's burst of productivity reflects a dramatically slimmed manufacturing work force. The U.S. rate is climbing faster in 1988 than the IMF has projected.



Current Accounts

■ Still in its own league as a debtor, the U.S. has nonetheless begun to chip away at its monster trade deficit. Britain's rising exports cannot catch up with the flood of imports sucked in by exuberant consumer demand.

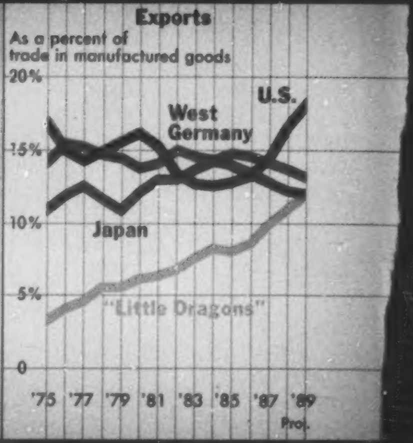


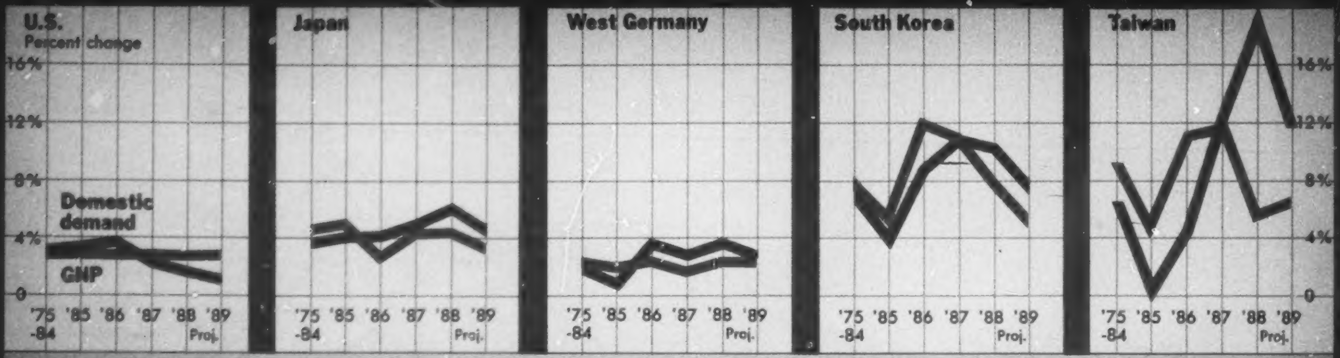
Government Budgets

■ Following supply-side remedies, Britain has piled up a big surplus while chopping taxes. Japan has lowered taxes too, and cut its deficit. Trading partners still doubt the U.S.'s long-term resolve for budget reduction.

Shares of World Trade

■ The new U.S. export surge is on its way to surpassing the boom of the 1970s in terms of physical volume, but imports are only beginning to shrink from their peak levels. West Germany is taking the biggest hit as an exporter. A strong currency is not necessarily a disadvantage. Japan just



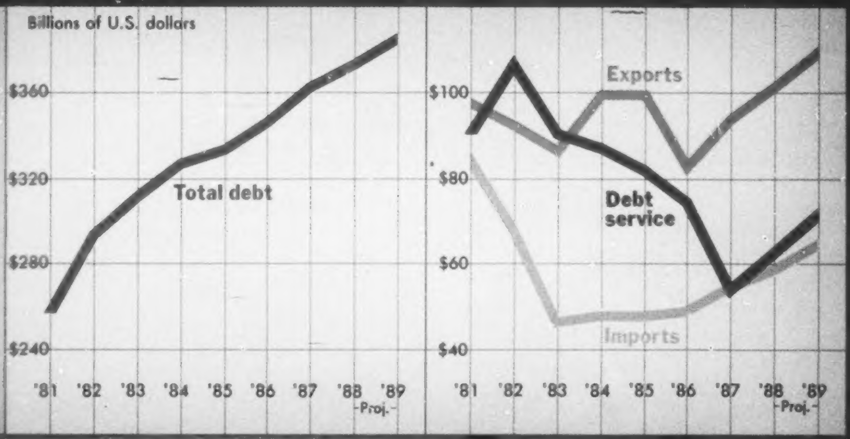


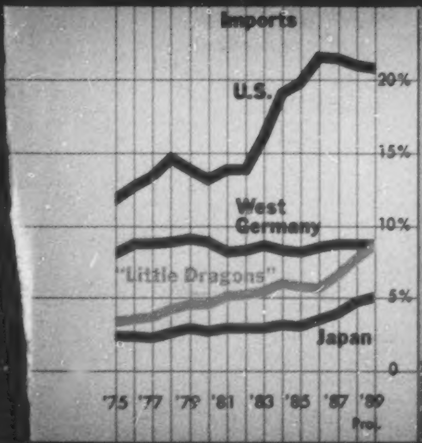
Total Output vs. Domestic Demand

■ The weaker dollar is rearranging economies around the world. GNP is growing faster than domestic demand in the U.S. as exports surge, while newly prosperous consumers in such countries as South Korea and Taiwan go shopping. Germany's demand, stimulated by a 1987 tax cut, will slow next year.

Latin American Debt

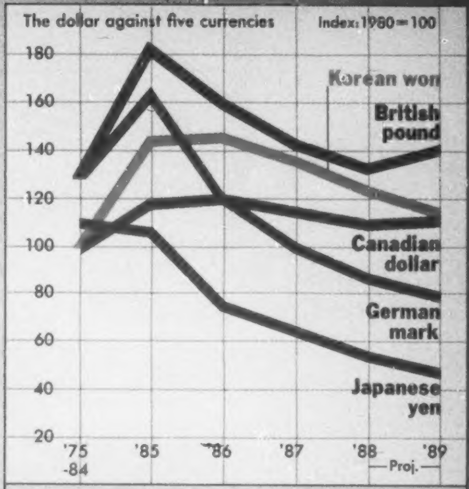
■ The bell tolls for the industrial world too: Latin American nations can service their debt burdens only by skimping on imports. Rising exports are giving them more purchasing power, but they are unlikely to be the rich markets they were at the beginning of the decade.





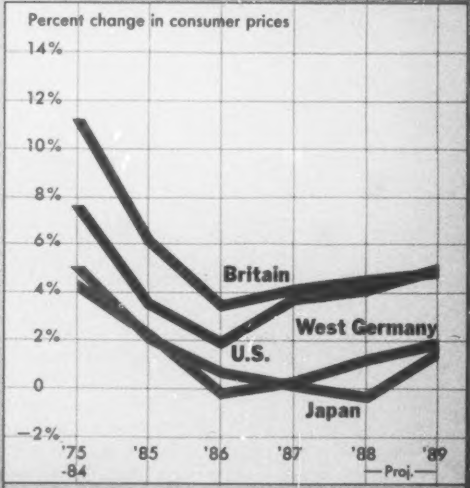
can't help staying competitive: It is paying less for oil and other raw materials, as well as for goods it buys from the "Little Dragons." As it subcontracts more and more manufacturing to them, the low-cost components they supply are showing up in Japanese products sold to other countries. Effectively, Japan is exporting part of its trade surplus to other Asian countries.

MEASURES OF



The Dollar

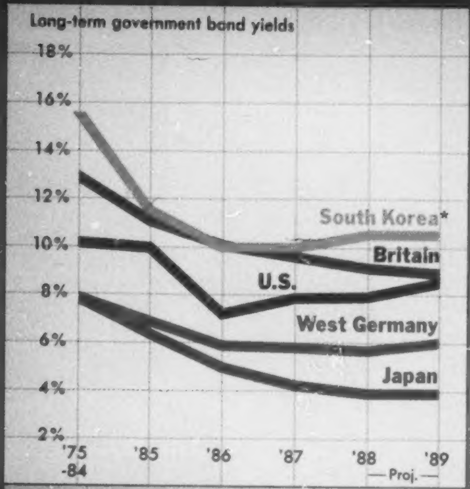
■ After a roller-coaster ride for most of the decade, the dollar seems to have settled down. But the pound is headed for a fall because of Britain's rising trade deficit. Responding to arm-twisting by the U.S. and other Western nations, South Korea has let the won rise.



Inflation

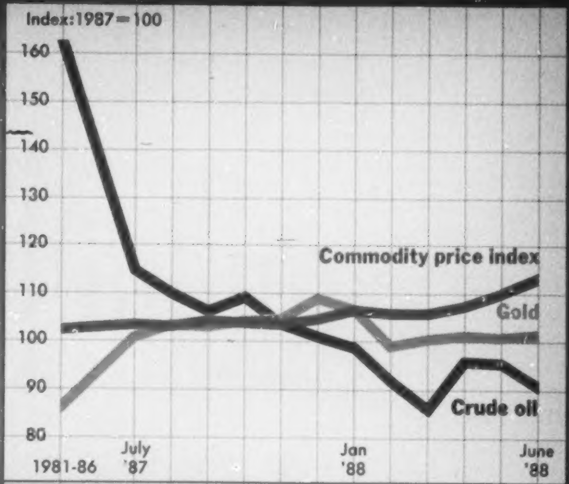
■ The era of disinflation is over—commodity prices are rising, European money supplies are growing rapidly, and wage demands are putting upward pressure on U.S. rates. But there's no sign of the spiraling inflation that made the Seventies a global nightmare.

MONEY AND MARKETS



Interest Rates

■ Though higher inflation will nudge interest rates up in the coming year, other forces, notably the declining U.S. trade deficit, are limiting the rise. Rates remain well below their peaks, suggesting that the financial markets are not looking for markedly higher inflation.

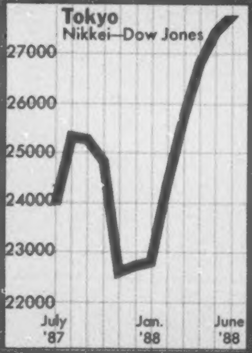


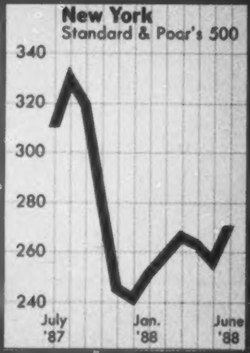
Commodities

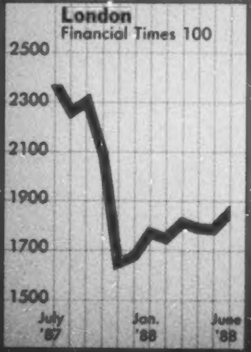
■ After two years of lethargy, commodity prices have been full of bounce since mid-1987. The U.S. drought will push farm prices still higher, an unexpected boon for the developing world. Oil prices are down, and demand for other commodities, especially metals, may not be strong enough to keep prices rising at the rate of the past year.

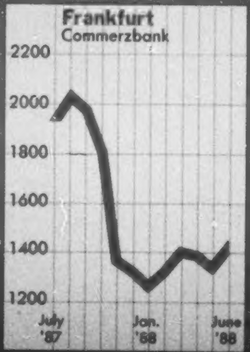
Stock Markets

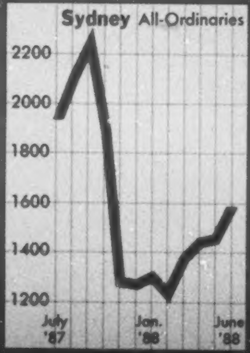
■ It's One World of capital flows today. From Sydney to Singapore and from New York to Paris, nearly all the world's stock markets seemed to move in harmony last year save for the Tokyo market, which is tightly controlled by the Japanese government. Ironically, the capital that has fortified those stock markets in recent years came from investors seeking to diversify their risks. Now, because of the immense flows, the many markets are more likely to move in tandem—wiping out the sought-for diversity.

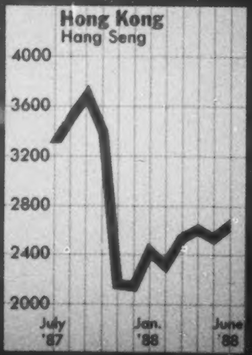








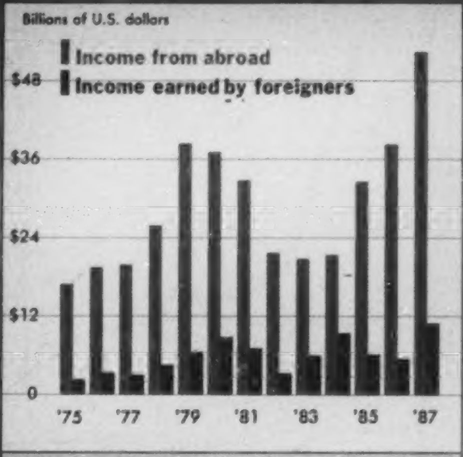




BUYING INTO AMERICA

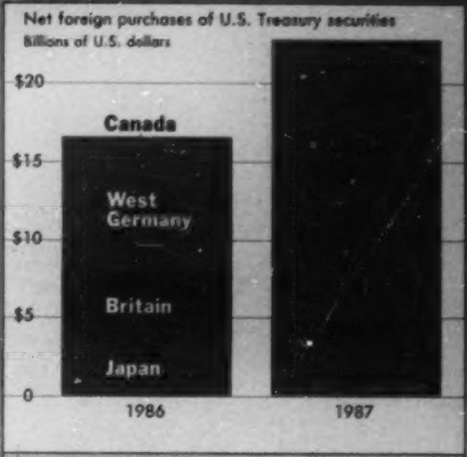
IS THE REST of the world gobbling up America? Direct foreign investment is big—$261 billion at last count—and it's growing, by almost 20% last year. The flow is close to surpassing the $308 billion that U.S. corporations have invested abroad over the past few decades. But those U.S. figures represent the outdated book value of plants purchased over several decades. Aged these assets may be, but senile they're not. Last year they earned $52.3 billion. By contrast, most foreign investment in the U.S. is fairly recent, and its market value is close to book value. Many of the ventures were also money losers or startups, and their owners are not yet making much on them—a mere $10.5 billion last year.

Though the spendthrift U.S. habits that give rise to the foreign investment are a problem, the investments themselves are not. Now earning an average of 4% to 5%, they are a cheaper way to finance the U.S.'s worrisome foreign debt than bonds yielding 9% to 10%. More important, the capital the U.S. exported in the past helped lay the foundation for global economic integration. The capital others export to the U.S. in the years to come will build on it. ■



Earnings Flows

■ Income from U.S. direct investment abroad is still five times the amount foreign companies take home. But foreign earnings are growing faster—a warning that the U.S. cannot indefinitely pull in capital from abroad.



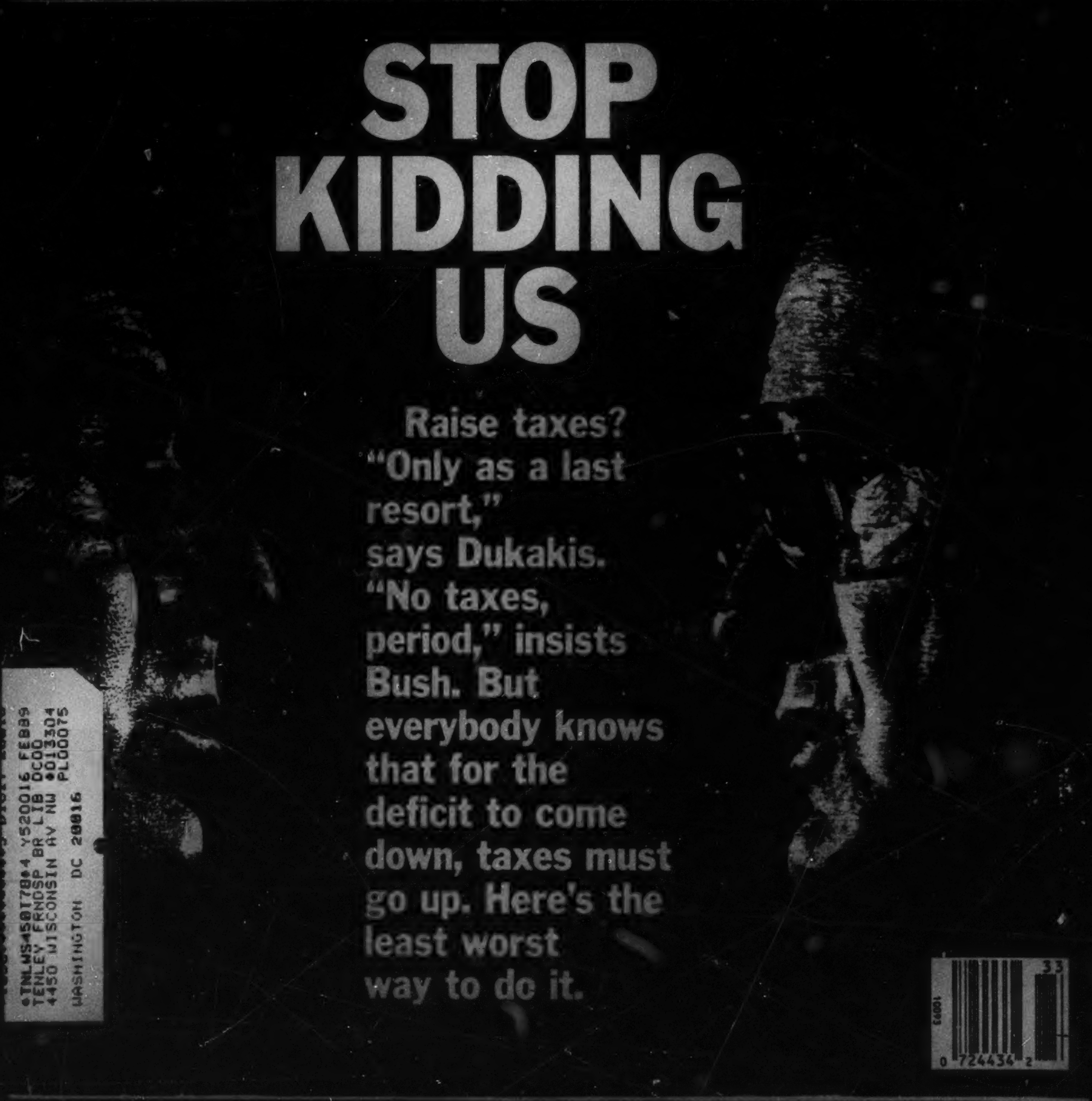
Buyers of U.S. Treasuries

■ Led by West Germans, foreigners bought about 18% of all U.S. government securities in 1987. But private foreign investors deserted the marketplace as the dollar fell, and central banks had to pick up the slack until recently.

RUST BELT RESURGENT • THE BOOMER AS BOSS • INVESTMENT STRATEGY NOW ■

ST 15, 1988

$3.50



STOP KIDDING US

Raise taxes? "Only as a last resort," says Dukakis. "No taxes, period," insists Bush. But everybody knows that for the deficit to come down, taxes must go up. Here's the least worst way to do it.

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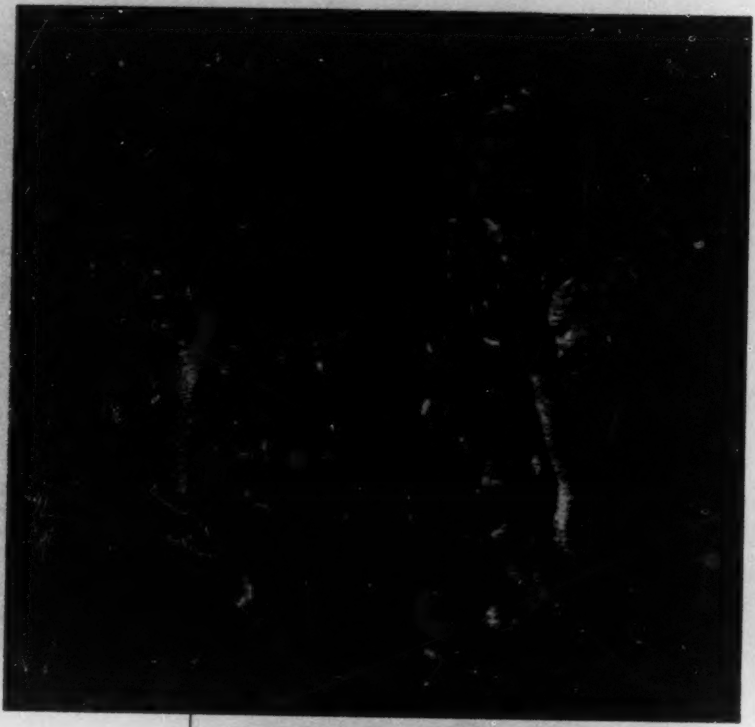
AUGUST 15, 1988

FORTUNE



It is up to Michael Dukakis and George Bush to produce a popular mandate for cutting the deficit.
PAGE 32

POLITICS & POLICY Cover Stories

STOP KIDDING US! 32

A message to presidential candidates George Bush and Michael Dukakis: It's time to tell us the truth. Short of a miracle, the only way to rid ourselves of the $150 billion budget deficit is to cut spending and increase taxes. For everybody's sake, let's get realistic. *by Ann Reilly Dowd*

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Just about every other country has adopted a national value-added sales tax to bring in more money. So why should the U.S. be any different? It offers maximum gain at minimum pain. *by Andrew Kupfer*

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The Vietnam veteran . . . The war protester . . . One by one, they're moving into the corner office. But this does not portend the radical changes you might have dreaded—or hoped for. The baby-boomers have grown up to be managers of moderation. They have adult ideas about business, and they're *tough*. *by Kenneth Labich*

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"The Pentagon procurement probe is this summer's relief act for the white-collar defense bar."

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"They were tough times, believe me. For a while there, I thought it was all over."

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"We may not do anything 1,000% better. But we do 1,000 things 1% better."

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"It's not just pictures of good-looking women, you know?"

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"He does flit around and land like a bee on you at inopportune times."

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"Underwater, you realize that you depend on everyone else not just for your livelihood but for your life."

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Behold the free-electron laser. It began as a military dream: The Strategic Defense Initiative program financed research to build something that could zap enemy missiles. That hasn't worked so far, but the lasers are markedly more versatile than their conventional civilian cousins. Even though each of these devices costs $2 million and requires tons of cement shielding, with engineering improvements they may work revolutions in medicine, microelectronics, and the manufacture of chemicals. *by Anthony Ramirez*

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"Eccentric" isn't the only thing they call the man who battled long odds to grab 382 prestigious U.S. department stores. Some go so far as to call the flamboyant new proprietor of Bloomingdale's, Burdines, and Jordan Marsh "Ivan the Terrible" as well. *by Kate Ballen*

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The Land of the Morning Calm doesn't always look that way, as this photographic tribute to the many faces of its people shows. They are the hardest working on earth, and thanks to them the economy has gone from torpor to triumph. Despite political tensions, Koreans are taking a break next month to throw a 16-day, $3 billion extravaganza: the Summer Olympic Games. Congratulations! *by Louis Kraar*

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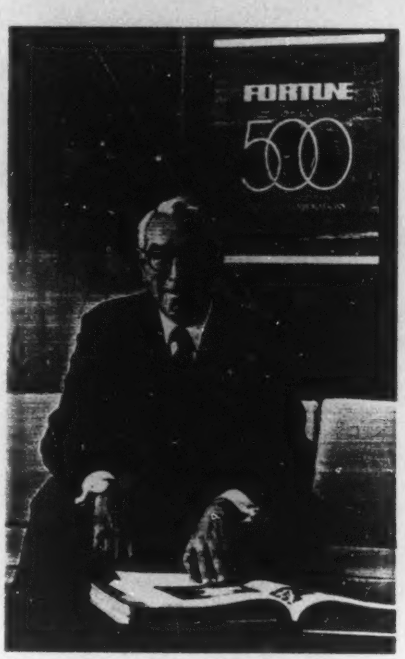

Edward Patrick Lenahan: 1925-88

I REALLY WISH you had had the chance to meet Pat Lenahan, the wittiest man I've ever encountered. Thousands of people in business and journalism treasured him as an excellent executive of unusual grace, charm, and intelligence. Pat served two terms as publisher of FORTUNE. This double stint, he quipped, qualified him as Time Inc.'s only born-again publisher. All of us who knew Pat have always seen it somewhat differently. We believe we were twice lucky. We have thought about that quite a bit lately, since Edward Patrick Lenahan died of cancer on his 63rd birthday.

The publisher is the chief executive of this magazine's business side, responsible for all non-editorial activities—advertising, circulation, marketing, public affairs. FORTUNE fared well under publisher Lenahan. The years 1973 to 1975 were difficult for all magazines, yet FORTUNE managed to increase its ad revenues slightly. And from 1979 to 1984, they soared 128%. (Pat served as Time Inc.'s treasurer from 1975 to 1979.)

"The great grease pit of commerce" is how Pat once described publishing. But in reality he *believed* in business, and rejoiced in the quality of character of most businessmen and businesswomen whom he met.

"Their range of interests never ceases to amaze me," he said in a 1984 speech at the University of San Diego's business school. He spoke of the obligations business has to society. But, he said, "Remember the story of a certain Sunday school teacher. She asked her class how they could secure forgiveness from sin. A hand shot up and a child responded, 'First you have to sin.' " After the laughter, Pat added: "I encourage you to be for good works on the part of your business. But first you have to make a profit."

He delivered memorable stingers on occasion, reserving the real barbs for his bosses. A Time Inc. president once fished for compliments on a new blue suit. Pat zinged: "You look like a Bulgarian used-machine-gun salesman."

A onetime Jesuit seminarian who enlisted in the Seabees in World War II, graduated from Harvard, and joined FORTUNE as an ad salesman in 1955, Pat was a practicing intellectual. His definition of a "good" weekend was to read six books without changing from his robe. A "great" weekend was one where he didn't even get up. From one of those beloved books came the text for the program at his memorial service. "Wouldn't it be lovely to have it all to do over again?" former British Prime Minister Harold MacMillan asked Field Marshal Lord Alexander toward the end of their lives. "Oh, *no*," shot back the old soldier. "We might not do *nearly* so well."

To Pat's family—his wife, Lois, and their four children—we say thank you for sharing him with us. We are particularly proud that a daughter, Elizabeth, is our assistant international advertising director. The Lenahan tradition lives on.

Marshall Loeb
MANAGING EDITOR

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arrested for driving under the influence. The companies expect the gadgets to catch on among trucking companies and other fleet operators. A bill is pending in New York to permit putting interlocks in school buses.

Though the price of the devices is sobering—about $500 each—drivers can save on insurance. The **Moore Group** in Atlanta offers a 15% to 20% discount on some coverage in three states to drivers that install a Guardian interlock system. **– Carol Davenport**

SCRAMBLING FOR 4%

■ New international capital requirements will give regional banks a leg up in the U.S. at the expense of most money center banks. Designed to shore up the world financial system, the rules call for banks' core capital to equal 4% of assets by 1992. The regionals average 6.45%, while the big banks, at 3.53%, must raise $10 billion in 3½ years, according to IBCA Banking Analysis Ltd. in London.

Most can meet the standards by retaining earnings, if they don't have to make further bad debt allocations for Third World loans. But the weakest—**BankAmerica**, **Chemical**, **Continental Illinois**, and **Manufacturers Hanover**—will be forced to shrink as well, selling assets both to raise capital and to lower the base on which the 4% is calculated.

The adjustment has begun. Manufacturers Hanover sold its profitable consumer finance subsidiary, posting a gain of $290 million and removing $3 billion of assets from its balance sheet. **Chase Manhattan** sold its Dutch bank subsidiary.

The money center banks are going to miss opportunities to grow. Interstate banking regulations have hindered big bank expansion while helping regionals go shopping. Now capital rules will do the same. **– C.H.**

HOW MUCH CAPITAL THE BANKS NEED*

MONEY CENTER BANKS	Capital-to-asset ratio	Surplus (shortfall) in millions	Years to meet shortfall
J.P. Morgan	7.04%	$2,067	–
Bankers Trust	4.70%	$432	–
Citicorp	3.33%	($1,459)	2.0
Chemical	2.74%	($1,059)	4.3
Manufacturers Hanover	2.47%	($1,276)	5.6
BankAmerica	2.34%	($1,752)	N.A.
REGIONAL BANKS			
First Wachovia	7.88%	$639	–
Norwest	5.95%	$337	–
Bank of New England	4.98%	$277	–

*Capital-to-asset ratios calculated under new rules. Years to meet shortfall reflects retained earnings needed.

SOURCE: IBCA BANKING ANALYSIS LTD

Van Harlow found risk-prone investors tend to be low on enzymes.

EFFREY MAR—PICTURE GROUP

A BLOOD SAMPLE FOR YOUR BROKER?

■ Ready to plunge into penny stocks? Better to have your blood checked than your head examined. A new study at the University of Arizona has found that people with low levels of the enzyme monoamine oxidase (MAO) are more likely to take financial risks than those with higher levels. Essentially, the university's study is an extension of data that psychologists have known for years: that people who climb mountains or jump out of airplanes are low on MAO.

Van Harlow, an assistant professor of finance who conducted the study, took blood samples from 125 undergraduates and related the enzyme level to performance in a series of simulated auctions. He found that the men in his group tended to take higher risks than the women. This coincides with earlier findings by medical researchers that men often have less of the enzyme than women, younger men less than older men.

Most of the money for Harlow's study—about $24,000—came from the Research Foundation of the Institute of Chartered Financial Analysts, a 10,000-member organization of security analysts and portfolio managers. The members' interest in investor behavior is logical, but will getting into customers' blood also get into their wallets? **– C.G.**

LUNCH ON THE RUN

■ It's lunchtime in New York City, and harried office workers are getting a cheap bite at their favorite corner pushcarts. The customers like it, and the vendors are doing very nicely, thank you. Then one day along come the cops: Worried about pedestrian congestion, the city starts enforcing a largely ignored five-year-old law that bans peddlers from the most crowded corners. Faced with an outcry, Mayor Edward Koch would permit up to two per corner. He plans a lottery every two years to choose which of the city's 3,000 vendors get the choice locations.

The move has these noble entrepreneurs sounding a lot like CEOs at a convention of the National Association of Manufacturers. Complains Chris Ferencsik, owner of an 80-cart ice-cream chain: "Once you get the government involved, business is doomed to failure." Frank Cicio, president of the Big Apple Food Vendors Association and owner of eight hot dog carts, ~~argues~~ that food carts are no different from other types of businesses—it takes time to build a customer base. Under Koch's plan, a vendor could spend two years working up to a $300-a-week income and then have to start over, who knows where?

In the street vending game, New York City has the biggest action. A good hot dog vendor working six days a week can produce sales of about $60,000 a year and keep a quarter of that as profit. But other climates beckon. Ana Espinosa, ance the budget. Players can pick their own spending cuts. No one has yet figured out a politically realistic way to beat the game: Balance the budget without raising taxes.

After the election the commission will hold hearings aimed at educating the public and the Congress. By December, Lewis and Strauss hope to rally a majority of the panel behind a bipartisan plan that would influence the new President's first budget. The commission probably will recommend a multiyear program of spending cuts and tax increases. The details will depend on the new President, who will appoint two members—a Democrat and a Republican—making it a 14-person group.

If Bush wins, the commission is more likely to endorse a package of big spending cuts and modest revenue increases, probably higher sin and gasoline taxes. If Dukakis prevails, the commission may recommend fewer spending cuts and more aggressive tax increases. One outside possibility: a combination of a value-added tax and reductions in the Social Security payroll taxes. Says a commission insider: "The idea would be to replace a very regressive [payroll] tax with a less regressive [VAT] tax. The combination would also raise money to reduce the deficit and take some money out of the Social Security surplus."

NO MATTER who wins, the commission is likely to recommend modest real cuts in defense, as well as increased burden sharing by the Allies. The group is also expected to call for some cutback in Social Security and other federal retirement programs, perhaps a one-year freeze on cost-of-living adjustments, or greater taxation of benefits. Another likely target is Medicare.

Whatever its final recommendations, the commission will offer the new President much needed political cover to do the unpopular and the unavoidable. Warns Minnesota GOP Congressman Bill Frenzel, a Bush adviser who serves on the commission: "Our greatest difficulty won't be reaching a consensus, but selling it to Congress."

The National Economic Commission can help sell the dismal details of deficit reduction to the people and through them to Congress. But it is up to George Bush and Michael Dukakis to produce a popular mandate for cutting the deficit. They can't do that unless they face reality and start talking straight about the most important economic issue of the presidential campaign. ◼

THE CASE FOR A CONSUMPTION TAX

Want to reduce the federal deficit, but don't want to go back to sky-high income tax rates? Read on. ◼ *by Andrew Kupfer*

YOU KNOW they're going to do it. They say they won't, but they will—later, after they're safely elected. When their backs are up against the wall, when their best-laid plans are thwarted by selfish colleagues, when they've wrestled with their consciences about the burdens of the next generation, then the politicians will do what they figured they had to all along. They will raise your taxes.

But not all pain is created equal. You don't necessarily have to shell out 70% of your salary in income taxes to cure the budget deficit. There are other taxes that nibble at your wallet a little bit at a time: consumption taxes, which tax you when you spend.

State and local sales taxes are consumption taxes. So are excise taxes, such as the gasoline tax and the "sin" taxes on cigarettes and alcohol. Politicians, with some support from big business, are also considering a tax that, like soccer, people all over the world embrace, but few in the U.S. understand: a multistage sales tax called the value-added tax, or VAT.

To bring the budget deficit down from the stratosphere, Congress will give consumption taxes a big play next year. Washington blanches at the thought of tinkering with income tax rates so soon after the tumult of 1986's tax reform. Most excise tax rates, as nostalgia buffs know, are much the same as they were in the 1950s, so they make a ripe target. But raising them probably won't bring in enough to balance the budget. Hence, Ronald Pearlman, chief of staff of the congressional Joint Committee on Taxation, says it will be looking hard at a broad-based sales tax, including the VAT. You can bet that the National Economic Commission is too, as this panel of politicos and businessmen tries to dissolve the deficit.

REPORTER ASSOCIATE *Edward Prewitt*

The obvious place to start is with excise taxes, which help politicians justify taking money from voters. Energy taxes, for example, make such limited resources as oil more expensive, and sin taxes dissuade people from doing things that are bad for their health and sometimes dangerous to others (such as drunken driving). Americans have it easy, paying rates far below those in most other developed countries.

Deficit cutters usually say raising taxes on cigarettes and alcohol won't bring in much money. They're wrong. Simply adjusting the rates for inflation since the 1950s would raise an extra $20 billion (see chart, page 38). The U.S. has not raised beer and wine taxes since 1955 and has increased the tax on liquor only once since 1951. Or Congress could double the existing rates, and tax beer, wine, and spirits according to their alcoholic volume. Taxes on the alcohol in beer and wine work out to be much lower than the tax on liquor—a penny per ounce of alcohol in wine, a nickel in beer, and a dime in whiskey.

If Congress doubled the cigarette tax—since 1982 it's been 16 cents a pack—federal revenues would rise $3 billion a year. Doubling the liquor tax to about $2 a bottle and taxing wine and beer at the same rate as whiskey would produce an extra $13 billion a year. Oenophiles may argue that their drink, unlike hard liquor, is often an accompaniment to food and not consumed just for the alcoholic effect. But even after the tax adjustment, the levy on a bottle of wine would be only 60 cents a bottle. The British pay about $1.30.

ENERGY TAX preferences come with the territory. Southwesterners favor an oil import fee so they can raise the price of domestically produced oil. Northerners, who buy a lot of heating oil, hate the idea. So do many economists. Says Charles E. McLure Jr., senior fellow of the Hoover Institution at Stanford University: "Ordinarily the oil import fee is pushed by people who assert an interest in energy independence for the U.S. What could be dumber than a policy to drain the U.S. first while making some of the wealthiest Americans wealthier?"

Far wiser to boost the tax on gasoline. A penny of tax per gallon yields about $1 billion in revenues; Americans buy about 100 billion gallons a year. (That formula would not necessarily hold if taxes go up so much that driving goes way down.) The tax would hit the wide-open spaces in the West hardest. It would also be regressive, since gas purchases eat up more of low incomes than high ones. But some economists argue that people who use the roads or buy goods shipped by road cause "negative externalities"—pollution and noise—and should pay for them. A gas tax wouldn't hurt manufacturers much: They account for only a small part of what the U.S. uses.

"I think a gas tax could carry a major part of the load in cutting the deficit," says John Shoven, chairman of Stanford's economics department. "You could get $40 billion from a 40-cent tax, and the U.S. price would still be low. Maybe you would get 0.5% more inflation, but it wouldn't cause a spiral. In fact, if the gas tax helped the government control the budget, inflation would recede." A more modest tax of 25 cents a gallon would raise the combined federal-state tax to an average of 40 cents. The price of gas, roughly $1.35 a gallon, would still be no more than its high in 1981 and way below what Europeans pay.

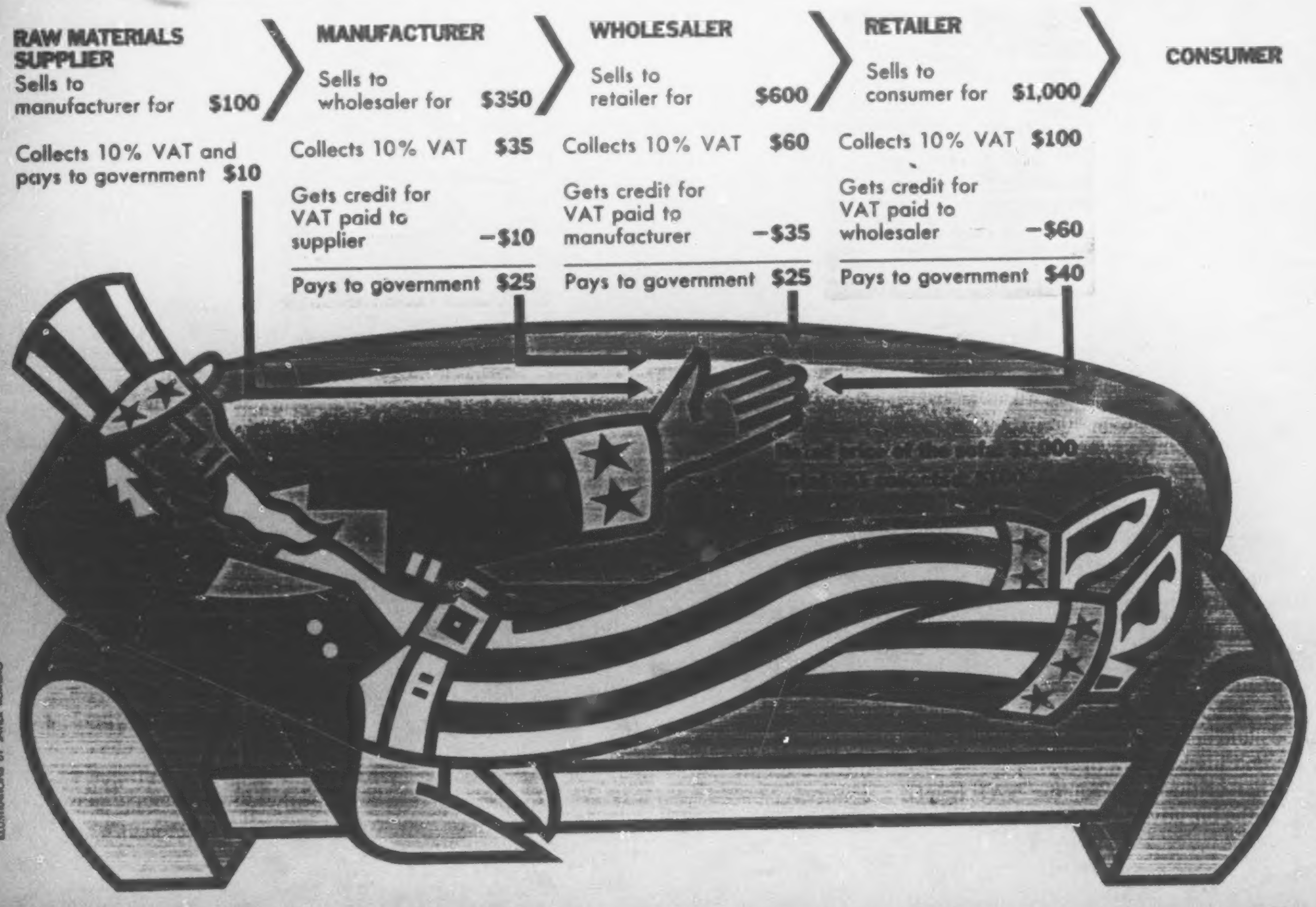
WITH $50 BILLION or so more a year from excise taxes, would the U.S. still need a VAT? Yes, if Congress does not include the Social Security surplus in figuring the budget deficit. It shouldn't, since the surplus is funded by separate payroll taxes, not general revenues. In 1993 the annual Social Security surplus will be about $100 billion. A federal budget deficit of $160 billion would be reported as only $60 billion then, and with some spending cuts and excise tax increases, Congress could declare victory and go home. Without the Social Security surplus, and very likely even with it, the government will not be able to close the budget gap—unless there is a broad-based tax increase.

Think of the VAT as sales tax collected in a different way. A retail sales tax is charged only at the final point of sale. But a VAT strikes transactions at each step in the process. Every company that makes or sells a product pays a tax on the materials it buys from its suppliers and collects a tax on whatever it sells to its customers. The company then gives the government the tax it has collected after taking a credit for the VAT it has paid suppliers. It thus remits a tax only on the value that it has added to a product (see illustration).

The VAT is better than a simple sales tax. One plus: It would be more resistant to chiseling. Did you ever buy something for cash and just wink at the sales tax? With a VAT, the tax man wouldn't lose all, having in his till the money turned over by everyone from the wholesaler on down to the supplier of raw materials. A VAT would also be kinder to exporters, who get a rebate for the VAT they've paid. (They don't currently get

HOW THE VAT WORKS

With a Euro-style 10% value-added tax, Uncle Sam would collect at each level of production. The sofa shopper ultimately pays the tax—but does not always see it.


RAW MATERIALS SUPPLIER
Sells to manufacturer for $100
Collects 10% VAT and pays to government $10
MANUFACTURER
Sells to wholesaler for $350
Collects 10% VAT $35
Gets credit for VAT paid to supplier −$10
Pays to government $25
WHOLESALER
Sells to retailer for $600
Collects 10% VAT $60
Gets credit for VAT paid to manufacturer −$35
Pays to government $25
RETAILER
Sells to consumer for $1,000
Collects 10% VAT $100
Gets credit for VAT paid to wholesaler −$60
Pays to government $40
CONSUMER
Retail price of the sofa: $1,000

ILLUSTRATIONS BY JAVIER ROMERO

rebates for sales taxes, so those payments are built into the price.) Finally, a VAT would catch service companies, which historically have been exempt from sales taxes. A service company—say a photocopying operation—would want to be part of the VAT system so it could claim a credit for the tax paid to suppliers of its paper and office equipment. To qualify for the credit, it would have to collect the VAT from customers and send it on to the government.

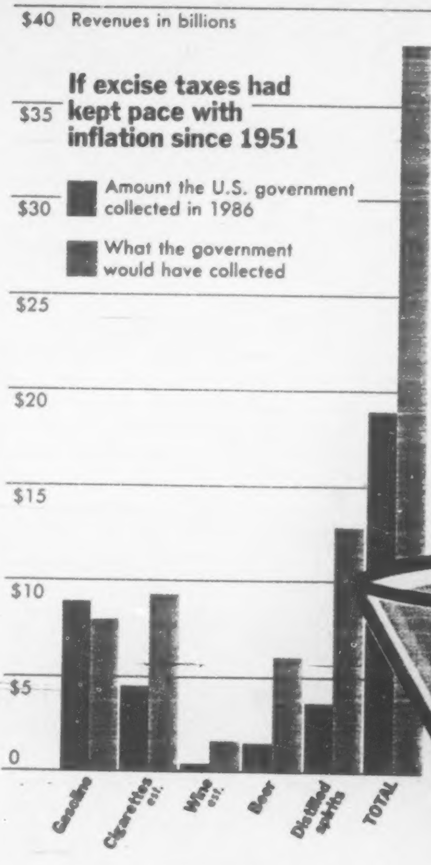
A VAT also works better than a single-stage tax imposed before the retail level. A tax on manufacturers, for example, would favor makers of imported goods at the expense of domestic producers. U.S. distributors of foreign-made goods would pay a tax based on the price at the port; subsequent costs for advertising and distribution would be tax-free. But many American manufacturers do their own advertising and distribution; those costs are built into the prices they charge retailers and would be hit by the tax. (U.S. companies that sell through distributors would be on equal footing with the foreign manufacturers.)

Applying a levy at the wholesale level would tax what the U.S. distributors of foreign goods escape in a single-stage manufacturers' tax. But it would cause other problems. As a rule, commodities have a lower retail markup than luxuries, so a wholesale tax would add more to the eventual price of necessities than it would to extras—a highly regressive arrangement. It would also give capital an artificial signal to move into high-margin businesses.

HOW WOULD A VAT affect the economy? By making consumption costlier, it should stimulate savings and investment. But if the VAT tilts toward savings too quickly, the economy could head straight into a recession. The consensus among economists is that the economy could safely absorb a deficit reduction of $35 billion to $50 billion a year led by a VAT.

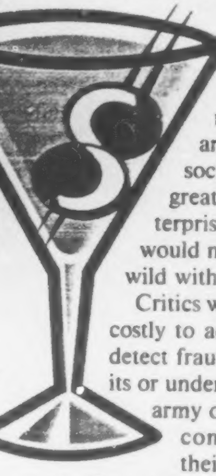
Forty-three countries have a VAT. The U.S., Japan, and Canada are the only major industrial powers without one. Why? For some economists the VAT is too regressive, capturing a larger share of the incomes of poor people than of affluent ones, since lower-income people have to spend a much larger proportion of their earnings for goods and services. Big earners are able to save and invest more of their pay.

Other critics say that the VAT helped create the big governments in Europe. They claim that the tax is a money machine that would make it too easy for Congress to raise and spend vast sums. Each percentage point of a broad-based VAT would haul in about $25 billion in the U.S. Most governors and mayors are against a VAT, howling that sales taxation is a local prerogative. And budget-conscious bureaucrats fear the expense of setting up and running a new tax.



GETTING A BIGGER KICK

The gas tax is the only one that has matched inflation. Since 1951 the taxes on beer, wine, and spirits have gone up just once.



In Europe, progressive tax measures elsewhere in the system counter the VAT's regressiveness. Vito Tanzi, director of fiscal affairs for the International Monetary Fund, says, "Equity should not be the concern of each tax. It should be the concern of tax policy as a whole."

One way to help American families hurt by a VAT would be to expand the earned-income credit. Say a family of four earns about $12,000 a year—what the government considers the poverty level. Assuming they spend all their money, a 5% VAT would cost the family $600 a year. By using the earned-income credit, the entire sum could be credited to them when they file their income tax return. Says Henry J. Aaron, a senior fellow at the Brookings Institution: "For very little cost—5% to 10% of the VAT you raise—you could protect low-income households."

Certainly it is no coincidence that the big governments of Europe all have the VAT money machine in their service. But telling the chicken from the egg is not so easy. As Alan A. Tait, the IMF's deputy director of fiscal affairs, points out, "Some countries that took on a VAT have expanded their public sector. But the evidence is that countries with large public sectors look for a buoyant tax that can satisfy it." Instead of creating big governments, the VAT allows those countries to support the housing, medical care, and other domestic programs that are part of the European social contract. With a greater stress on private enterprise in the U.S., Congress would not be compelled to run wild with a value-added tax.

Critics who say a VAT would be costly to administer are right. To detect fraudulent claims for credits or understatement of prices, an army of auditors must invade companies, inspecting their inventories and shipments. Four years ago the Treasury Department estimated that the IRS would need 20,000 new inspectors at a cost of $700 million a year to police a VAT. Skimping on the detail work would be expensive too. At 31% of government revenues, Chile's VAT income is proportionately the highest in the world. Neighboring Argentina's VAT collections are only 14% of government revenues, even though its VAT rate is almost the same as Chile's. The difference? "Chile has done a fantastic job of control," says the IMF's Tanzi. (The repressive Pinochet government is well known for its control.)

States regard a national sales tax as a country lord views a game poacher, so Congress would have to coax those governments to coordinate their sales taxes with a federal VAT.

What might help the VAT fly? Former deputy treasury secretary Charls Walker, Mr. VAT to tax policy aficionados, champions a simple approach. Instead of keeping invoices that show how much VAT it has paid and received, necessitating a separate set of books, each company would define its value added as the difference between revenues and purchases, figures easily pulled from income tax accounts. Companies would calculate their VAT on a few extra lines at the bottom of the corporate income tax form—no fuss, no auditor army.

TO ENTICE states to coordinate their sales taxes with a federal VAT, Walker would allow them to ride piggyback. That is, in each state the IRS would collect the sum of the federal VAT plus the state sales tax, and would then give the state a check for its share. The state would save the cost of running its sales tax bureaucracy, putting it ahead of the game. A constitutional amendment would let Congress raise the VAT rate only if a majority of at least two-thirds approved.

Walker would also insist that the VAT be levied at a single rate, with no exempt products or services. Multiple rates not only increase the complexity of a VAT, but also lead to bizarre government dilemmas. In France, where medical products are taxed at a very low rate, an extended parliamentary debate focused on whether Head & Shoulders shampoo is a cosmetic or a medicine. (The decision: It is a cosmetic.) In Britain the VAT on children's clothes was once lower than that on adults', so the customs department had a long list of what qualified for the favored rate, measurements and all. When the miniskirt came into vogue, stores tried to pass it off as kidswear.

Simplicity notwithstanding, the Walker variation creates as many problems as it solves. Companies with high labor costs and low raw material outlays—advertising agencies, publishing houses, and software firms, for example—are likely to fight the tax, figuring that it will be harder for them to pass through the costs than for manufacturing companies.

Almost every country with a VAT has exemptions for special groups, such as farmers, or multiple rates so that such necessities as food are treated more gently than luxuries. Walker's VAT can't work with multiple rates. Accountants would need to keep track of which supplies a company bought at each rate, resulting in the European invoice system that he is trying to avoid. Says J. Gregory Ballentine, national director for tax analysis at Peat Marwick Main: "The VAT that Congress enacts will have all sorts of warts, like the income tax has. Congress and the Administration won't suddenly become purists. We'll have favored rates."

Finally, Walker's proposal that the feds pay the administrative costs for local sales taxes might not be enough to get the states into line. Not every state looks at its tax administration as a burden, says the Hoover Institution's Charles McLure, a former Treasury Department official. "I think you're talking about turf and influence, and even patronage in some states."

Robert Reischauer of the Brookings Institution has an idea for another kind of VAT. He would use a 7% to 10% VAT to pay only for medical programs—Medicare and Medicaid would be combined in a new health insurance trust fund. His strategy would also make Medicaid a federal baby, removing a $24 billion load from the states. So the antiregressives would see VAT money going toward progressive spending, the money machine Luddites would see the VAT tied to a restricted set of programs, and the states would be rid of a heavy cost.

VATS AROUND THE WORLD

COUNTRY year established	**RATE**	**PERCENT OF 1986 GOV'T REVENUES**
South Korea 1977	10.0%	21%
Sweden 1969	12.9%	17%
West Germany 1968	14.0%	13%
Britain 1973	15.0%	16%[1]
Mexico 1980	15.0%	17%[1]
Italy 1973	18.0%	13%
France 1968	18.6%	21%[1]
Belgium 1971	19.0%	15%[1]
Chile 1975	20.0%	31%
Netherlands 1969	20.0%	15%
Norway 1970	20.0%	20%
Denmark 1967	22.0%	23%
Ireland 1972	25.0%	19%[2]
Ivory Coast 1960	25.0%	8%[2]

[1] 1985 figures. [2] 1984 figures.

SOURCE: IMF

VAT countries have big governments. In the median European country, government spending is 42% of gross domestic product—vs. 24% in the U.S. and 17% in Japan.

Reischauer's strategy does not take into account that medical costs are rising faster than inflation, so the VAT would have to grow to keep up with them. But the proposal pays attention to political realities and may be able to speed the VAT's adoption.

BUSINESS LEADERS feel better about the VAT than about most other taxes. The Kellogg School of Northwestern University polled the chief executives of 120 U.S. companies with at least $1 billion in revenues, and found that more of them, 48%, recommended a VAT than any other tax option. Chrysler's Lee Iacocca, who is a member of the National Economic Commission, has long favored a VAT. His competitors at Ford Motor do too, as a lesser evil than a corporate tax rise or a gasoline tax. Ford chief economist Martin Zimmerman worries that if the deficit isn't cut, interest rates will rise and investment will fall: "We don't want to cut investment, so reluctantly we conclude that we must cut consumption." Ford's tax department, which is familiar with the accounting done by the company's European subsidiaries, does not think a multistage VAT would cost much to keep track of.

Congress may be ready to listen. Republican Congressman Bill Frenzel, a member of the commission and not a fan of tax increases, says, "The broad-based consumption tax intrigues a number of people and has people running around Washington trying to promote it. It is not well known in this country . . . [but] it is a possibility if Congress agrees with [House Ways and Means Chairman] Rostenkowski not to tinker with income tax rates."

So if politicians want to use consumption taxes to balance the budget, the VAT may be the answer. The IRS will need about two years to get ready for a VAT if Congress approves it, and the government will surely need some cash before that. An overhaul of gasoline and sin taxes can help bridge the revenue gap until a VAT is ready to roll. ■

■ MBAs' FAVORITE JOBS • THE '88 POCKETBOOK ISSUE • MEXICO'S FUTURE ■

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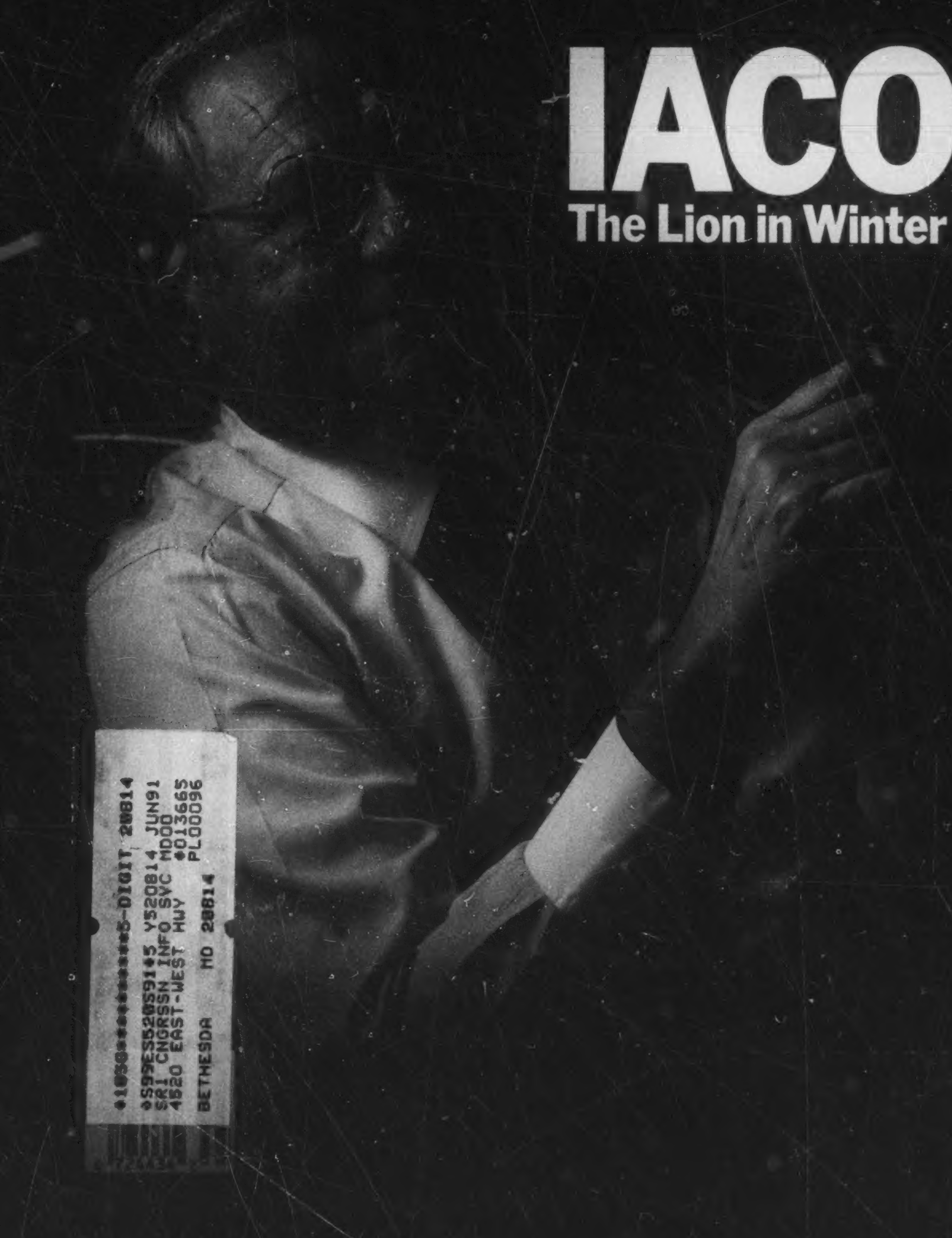

IACOCCA

The Lion in Winter Talks to FORTUNE:

How to Handle
Tomorrow's
Business
Challenges

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FORTUNE

GREGORY HEISLER

PROFILE/COVER STORY

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Here's what he didn't say in his two bestsellers. The bare-knuckle Chrysler chief executive talks with characteristic candor about some good times shared with Henry Ford II, offers an ounce of sympathy to GM's hapless Roger Smith, and reflects on his 42 years in automaking and the global future of business in the 21st century.

COVER: Gregory Heisler photographed Chairman Lee Iacocca at Chrysler's New York offices.

"In the end your legacy is: Did you know what the hell you were doing?"

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Not so long ago, the onetime champ of cereals turned wimpish. Now the company is back and roaring, a giant again. It has creamed competitors and brought dollops of youthful vigor to a business everybody else thought was mature. As it turns out, millions of Americans still love to eat breakfast. *by Patricia Sellers*

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"It's time for Republicans to focus on issues like the economy. And this is the man to do it."

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"We will be owner-managers. We're building equity and working hard. We're having fun."

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"Buy one of those parastatals and you buy a nasty union problem."

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"Jeffrey is probably the best-organized human being in the universe."

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"If there was a market in mass-produced portable nuclear weapons, we'd market them too."

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"The deficits have provided a fiscal boost to a global economy pitching into the abyss."

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An eruption of popular discontent gave Mexico's establishment the scare of its life—just when years of austerity were starting to pay off. Advice to President-elect Carlos Salinas: Hang tough, promote tourism and exports. One day, oil will come back. *by Brian O'Reilly*

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EDITOR'S DESK

THERE'S a political addict in some of us all of the time, and in all of us some of the time. As the race for the presidency heats up, FORTUNE aims to give you coverage of politics that is simultaneously unique and relevant to you as citizen and manager. Who does what to whom is not FORTUNE's meat. Instead, notes assistant managing editor Ann Morrison, who supervises our Washington coverage, "We look very hard at the real issues confronting the country and business and at how each candidate is likely to handle them."

WALTER P. CALAHAN

Writers Lee Smith and Ann Reilly Dowd on the Beltway beat

Sometimes we can be most impatient with the candidates. Witness the "Stop Kidding Us" cover story of our last issue: We called on the two presidential candidates to admit that, short of a miracle, the only way to cure the budget deficit is to raise taxes, a solution each has tried to dodge. That story was written by Ann Reilly Dowd, a 5½-year veteran of our Washington bureau, who describes her ongoing assignment this way: "We operate as a kind of truth squad. We listen to what the candidates are saying—or aren't saying—and weigh that against the real facts."

Her article won mixed reviews. Many inside the Beltway thanked her for saying what needed to be said. But she got a call from a high official at the Office of Management and Budget who was far from pleased. As it happens, Dowd once worked in the same Executive Office Building as her angry caller. Helping to write and edit daily press summaries for President Ford was her first job after she earned her MA in journalism at Northwestern University.

In this issue, Washington bureau chief Lee Smith focuses on Social Security and the desperate need for reforms (see page 84). Recently he has also written about the enormous voting power of retired people, called on U.S. allies to pick up a fairer share of America's defense budget, and urged that AIDS research funds be directed at high-risk groups and not the low-risk rest of us. Now he examines the huge and growing Social Security surplus and proposes solutions that at once will reduce the budget deficit and provide enough in the way of Social Security benefits for all the baby-boomers when they retire in the 21st century. Says Smith, who was FORTUNE's Tokyo bureau chief for three years before moving to Washington in 1985: "It's difficult to try to be ethical and at the same time to see what we can afford and what we can't. The exercise wasn't that different from trying to understand Japanese culture. It had many of the same illusory factors."

With the help of reporter Lucretia Marmon and editorial assistant Susan Schaeffer, Smith and Dowd represent a distinguished continuum of Washington coverage that dates back to the magazine's beginnings in 1930. Our conclusions haven't always been in line with conventional thinking. But unconventional thinking is something else that FORTUNE delivers as an exclusive.

Marshall Loeb
MANAGING EDITOR

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THE ECONOMY

WHO'S WINNING THE POCKETBOOK ISSUE?

Republicans rejoice because the numbers show the U.S. economy is muscular. Yet many voters see it as only a 98-pound weakling—and that helps the Democrats. ■ *by Louis S. Richman*

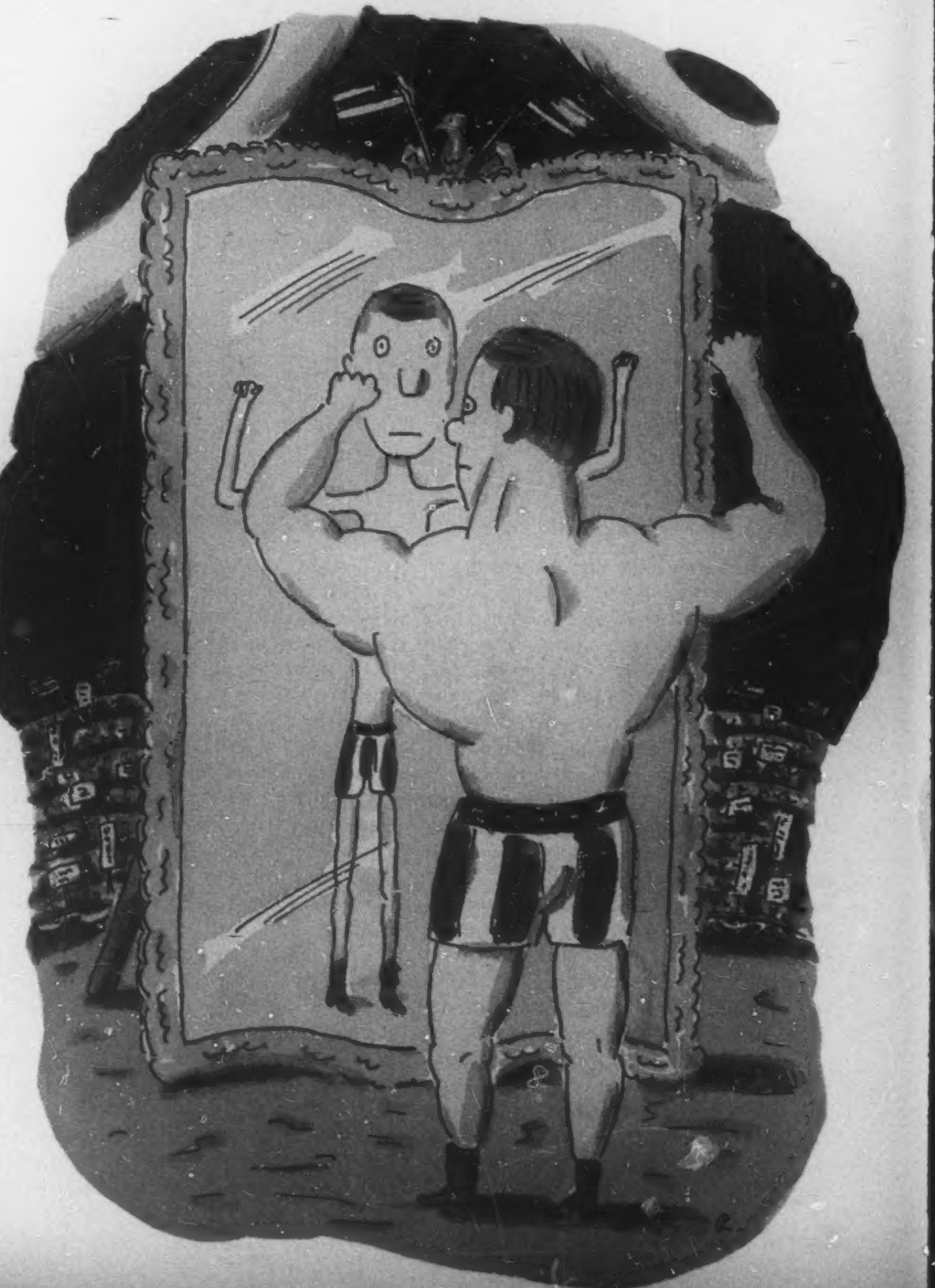
WHATEVER THE Democrats have going for them this year, you'd think the Republicans would at least have a lock on the one issue that most often decides presidential elections—the economy. Think again. Individually, Americans feel fairly flush. According to a recent Gallup/Times Mirror poll, 80% of those surveyed expressed "satisfaction" with their personal lives, including their economic situation. But looking at the U.S. economy as a whole, a surprising number of citizens don't see a nation enjoying its 70th month of steady growth, relatively low inflation, and broad prosperity. Instead, their self-image is of a society plagued by downward mobility and declining living standards, with a future that seems to hold little promise and even larger problems.

So far the Democrats have been remarkably successful in making political capital out of America's economic anxieties. The *satisfied* citizens identified by Gallup say they favor Michael Dukakis in November by a 4-to-3 margin. But Dukakis doesn't just claim, as he frequently has in his campaign speeches, that "we can do better" in the future. Take his line about the need for "good jobs at good wages." The implication is that while the Reagan era may have been splendid for the undeserving rich, many poor and middle-class voters are less well off than they were eight years ago.

Are they? To get an accurate reflection of how the U.S. economy has fared since January 1981, clear your mind of campaign rhetoric and focus on the following facts:

■ Real median household incomes are the best measure of family prosperity. From 1981 through 1986 (the latest year for which data are available) they rose a total of 9.1%, to $29,458. During the Carter years, they *decreased* 3.4%.

■ Under Reagan, real median incomes of



REPORTER ASSOCIATE *Edward Prewitt*

male, full-time workers climbed 3.8%, compared with a 6.4% drop under Carter. These gains have been shared by all races.

■ America's "misery index"—the sum of its inflation and unemployment rates—has plunged from 17.9% in January 1981 to 9.4% today. Barring a last-minute disaster, Ronald Wilson Reagan promises to become the first President on record to complete his term with both inflation and unemployment lower than when he was elected.

■ Since the end of 1980 the U.S. has produced nearly 16 million net new jobs, some 90% of all the jobs created by the Big Seven industrial economies. Today a record 115 million Americans are employed. At 5.4%, the unemployment rate is the lowest in 15 years. Black teenage unemployment, essentially unchanged under Carter, has fallen a full ten percentage points since 1981, to 31%.

■ During the Reagan years, the gap between rich and poor has widened. Between 1981 and 1986 the share of total national income claimed by the poorest 20% of households dropped from 5% to 4.6%. The take of the richest 5% of American families swelled from 15.4% to 17%.

■ Sending a child to a four-year, private college now consumes some 40% of median family income, up from 31% in 1981. The price of health care has also continued to skyrocket. But that other staple of the American dream, the home mortgage, has gotten cheaper. In real dollars, the annual after-tax cost of owning an average home peaked in 1982 at $9,599 and now stands at just $7,449. Measured as a share of median family income, that's a decline from a budget-busting 36% to a more bearable 25%.

■ Real GNP growth since the end of 1980 has averaged 3% a year, slightly less impressive than the 3.2% pace achieved during Jimmy Carter's term. But at 70 months and counting, the current expansion—already the longest period of peacetime growth in the history of the Republic—shows no immediate sign of ending its record-shattering run (see Fortune Forecast).

■ Still, the U.S. has purchased a sizable chunk of its current prosperity by running up a fearsome—and unprecedented—credit tab. Under Reagan, the federal debt has ballooned by $1.2 trillion, to $2.4 trillion. The current account, which measures trade in both goods and services, has swung from a surplus of $6.9 billion to a deficit of $154 billion. But not all this borrowing has been frittered away on consumption. Real gross business and personal investment has risen 25.6% since 1981, versus a decline of 2.3% under Carter. By most measures U.S. business is more competitive today than it was in the late 1970s. But then, with those kinds of debts to pay off, it had better be.

What these statistics tell us about Election 1988 pocketbook issues is clear: Americans have reason to fear possible *future* falls in living standards. Serious unsolved problems remain. But the charge that the rising tide of Reaganomics has mainly lifted the yachts and left the dinghies grounded is a bum rap. If anything, the current expansion has been even stronger and broader than most voters realize.

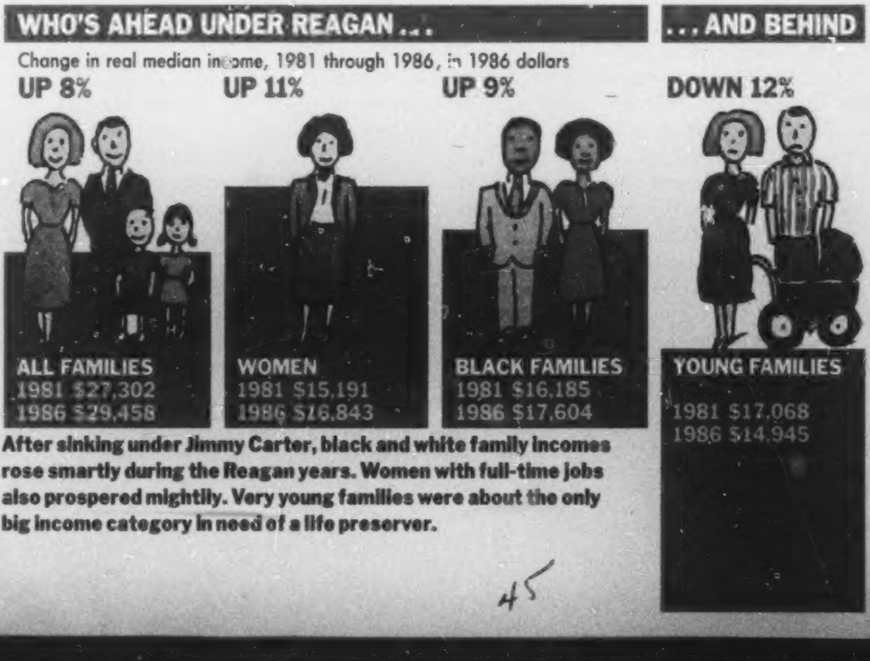
THE BIGGEST WINNERS by and large have been the two groups least likely to support George Bush: blacks and women. From 1981 through 1986 real median incomes of black families rose 10.1%, to $17,604 a year. Under Carter, they dropped almost 6%. One reason for the increase: the stunning gains by black families in which both spouses are full-time wage earners. Since 1981 their real median income has surged more than 34%, to nearly $40,000 a year.

Gains by women generally reflect the progress they have made in the workplace. Nearly 50 million women hold paying jobs—some 8.1 million more than when Reagan's presidency began. The rate of female unemployment has, for the first time during the 1980s, fallen to the same level as that of men. Many of the jobs women hold today are in higher-paying occupations that were once male preserves. The number of women in management and skilled production jobs has swelled since 1981 by 70.8% and 52.4% respectively. That partly explains why the infamous pay gap between males and females narrowed by five percentage points over the same period. Average annual earnings of women are now 65% of men's.

Unable to attack the Republicans for inadequate job creation, the Democrats have been assailing the quality of employment. Eight years of "deindustrialization," they claim, have pushed legions of well-paid manufacturing workers into low-wage McJobs. Though he generally avoids echoing Walter Mondale, Michael Dukakis repeats a line from Fritz's old stump speech. The country, he warns, is sinking toward "an America where all we do is flip each other's hamburgers and take in each other's dry cleaning for $3.35 an hour."

Burger-bashing makes no more economic sense in 1988 than it did in 1984. The bottom line is that for *every* category of full-time worker—black and white, male and female—real median incomes have risen since 1981, after stagnating throughout the 1970s. Marvin Kosters, an economist at the American Enterprise Institute, calculates that over 90% of lower income workers are part-timers, perhaps 80% of whom choose to work shorter hours.

True, even though the American industrial heartland has begun to rebound, some 550,000 manufacturing jobs have disappeared since 1981. But this hardly signals an erosion of the nation's industrial base. Manufacturing's share of national output is about the same today as it was eight years ago—20%. Many of these lost jobs were in relatively low-paying industries such as textiles and apparel. In general, the fastest-



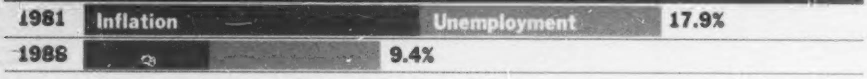
After sinking under Jimmy Carter, black and white family incomes rose smartly during the Reagan years. Women with full-time jobs also prospered mightily. Very young families were about the only big income category in need of a life preserver.

ILLUSTRATIONS BY MARC ROSENTHAL

THE REAGAN RECORD

	WHEN THE PRESIDENT TOOK OFFICE	NOW
Inflation (CPI)	10.5%	4.0%
Unemployment rate	7.4%	5.4%
Unemployment rate, adult black males	12.1%	9.5%
Mortgage interest rates	13.2%	9.0%
Personal income tax rates	14–70%	11–50%
Budget deficit (billions)	$79	$152
Trade deficit (billions)	$34.6	$131

THE MISERY INDEX



growing job categories in the 1980s have been higher-paying managerial and professional positions. They have increased 28% since the start of Reagan's first term and now compose a quarter of all employment.

DEMOCRATS are on somewhat stronger ground when they complain about a failure to close the gap between the haves and have-littles. Though more Americans are working, the proportion of the populace living in poverty—currently 13.6%—is little changed from 1981.* What has caused this stagnation is not some mythical expansion of bad jobs but an increase in the number of households headed either by single parents or people aged 15 to 24. For example, the number of families headed by black female teenagers—the poorest of all categories, with a meager median income of just $4,446—has risen 5% since Reagan took office.

Among married couples, however, the percentage living below the poverty line has declined. Only 10.8% of black married couples were classified as poor in 1986. That's a full 4.6 percentage points less than in 1981 and the lowest level since the Census Bureau started tracking this group in 1974. Among those 65 or older, the proportion in poverty peaked under Carter at 15.7%; by 1986 it too had dropped to a record low, 12.4%.

But what about the incredible shrinking middle class? Haven't a growing number of formerly well-off American families been slipping sadly into penury? No. Though many cases of downward mobility can be found, a study by Bureau of Labor Statistics economists Michael W. Horrigan and Steven E. Haugen shows that those exiting the middle-class are primarily upward bound. Thus, while the number of U.S. households with real yearly incomes between $20,000 and $56,000 has decreased since 1981 by 1.2 percentage points, families with incomes above $56,000 grew by four points.

So, if the income data are almost uniformly upbeat, why do many Americans feel edgy about the economy? Maybe it's superstition. Like Dickens's free-spending Mr. Micawber, who sailed through life blithely certain that something would "turn up," the U.S. in the 1980s has enjoyed an amazing string of timely breaks. When the budget deficit threatened to crowd out private investment, a horde of eager foreign lenders unexpectedly appeared. Later, oil prices—the scourge of the 1970s—took a largely unforeseen dive. And when U.S. consumer spending began to flag, well, the dollar dropped—without causing the friendly foreigners to panic, mind you—and exports exploded. Perhaps Americans simply fret that when Ron leaves the White House, his luck goes with him.

A more rational reason is that the costs of some of the essential components of the good life—college education, health care, and down payments on a home in many areas—have not stopped soaring. As a result, many families must run even harder just to keep pace. No one knows for sure, but it's likely that many second incomes brought home by working wives may well have been prompted by economic necessity rather than a desire to seek new career options. Reaganomics didn't spark these unhappy long-term trends. But neither has it done much to slow them down.

Both the working poor and the middle class, for example, continue to lose ground against rapidly rising health care costs. They have climbed more than 50% faster than the rate of consumer price increases over the past 20 years. Though prices in general moderated during the Reagan presidency, health care costs surged 57%. A survey by Hay/Huggins, an employee benefit consulting firm, reports that premiums paid by workers for employer-sponsored family health coverage rose 336% since 1981, to $485 this year.

Financing college education for one's children today, a far-off fantasy for many of the poor, is also becoming a bigger burden for middle-income Americans. The average annual cost of a state university education has soared more than 60% since 1981, far outstripping the 21% rise in financial aid. The price of sending a son or daughter to a private college now averages $11,870 a year, up from $6,566 in 1981.

Above all else, hanging over the economy like some giant boulder poised to flatten it are those monstrous trade and budget deficits. Because of them, Jay Schmiedeskamp, the Gallup Organization's chief economist, predicts that 1988 will prove an exception to the rule that the state of voters' wallets determines their electoral preference. Says he: "People vote their pocketbook when it's in trouble. When they see other problems looming, they vote on their perceptions. Voters today worry that the deficit is leaving a walloping bill that is about to come due."

THE CRUCIAL QUESTION of this election, then, may not be "Are you better off than you were eight years ago?" If it were, the Republicans should win hands down. Rather, the issue may well be which candidate will voters perceive as most likely to leave them even better off in 1992—and beyond.

In a presidential campaign still too volatile to predict, bashing the Reagan record (as Dukakis has been doing) or resting on its laurels (as Bush seems inclined to try) does the citizenry a disservice. The battleground is the future. What both men owe the country are the best arguments they can muster for how they plan to build upon the real prosperity achieved under Reagan—and some concrete proposals for tackling the daunting unfinished business that he will leave. **F**

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* The government draws the poverty line according to family size and age. For a single person under 65 years, it's an annual income of less than $5,701. For a couple over 65, poverty means income below $6,630. For a married couple with two children, it's an income under $11,113. For philoprogenitive families with nine or more members, the threshold rises to $21,185.

WHERE THE 1988 MBAs ARE GOING

The new grads are rejecting Wall Street in favor of entrepreneurial adventures or jobs in—can you believe it?—manufacturing. They say they're after more than money. ■ *by Peter Nulty*

IF STUDENTS are a bellwether of trends, then listen up. The get-rich-quick fever that over the past few years drove business school students to Wall Street like hootch-crazed prospectors bound for the Klondike has broken at last. Placement administrators of MBA programs from Cambridge to Palo Alto report a sharp decline in the number of graduates signing on with investment banks and brokerage firms. For example, only 11% of Harvard's 1988 MBA class will enter investment banking, compared with 30% of last year's class.

Ah, you say, October 19 and all that. Surprise: The change under way seems to go well beyond a redirection of the lemmings toward the next high-dollar cliff. Evidence is mounting that MBAs have begun to look for more from their careers than just megabucks or a guaranteed spot on the fast track. They are expressing greater interest in entrepreneurship and—hold your breath—manufacturing management. In a survey by the University of Pittsburgh's Katz school of business, MBA candidates at 11 top schools listed their personal and career concerns in the following order of importance: family, health, ethics, and leisure. Money and power came in seventh and ninth.

The new trend, if that's what it turns out to be, may even siphon talent away from business schools. Applications to MBA programs are suddenly slackening. The Graduate Management Admission Council, which administers a standardized test for applicants, estimates that the number of test takers will rise only 2.6% this year, compared with an average annual increase of 6% over the past three years. Next year, says GMAC President William Broesamle, the number of test takers may actually decline.

KEVIN KOLCZYNSKI

MBA Stacie Soule checks out her product.

WILL VAN OVERBEEK

Kate and Bill Duhamel gave up glitz to run a South Dakota cable TV company.

At the same time, law school applications have jumped 19% this year. Asked why, Thomas Jackson, dean of the University of Virginia law school (where applications rose 28%) says, "We're stunned. I'd guess it's partly *L.A. Law* and partly October 19." Jackson isn't the only expert to cite the TV program as a major force in shaping the career decisions of supposedly bright undergraduates. The show's message, reading between the bed hopping and the *pro-bono* work, seems to be that as a lawyer you can have fun and serve your conscience too. Black Monday, however, may not have been much of a factor: Law school applications started rising before October.

The market crash did rattle dreams on many a business school campus. "When the big Wall Street firms started cutting staff," says Linda Stantial, director of placement at MIT's Sloan school "you could see the dollar signs disappear from student eyes." Indeed, for some students, the dollar signs turned to tears. Karen Dowd, placement director at the Darden school of the University of Virginia, tells of one student weeping in her office at what seemed blighted prospects for a career on Wall Street. "Remember," says Dowd, "that many of our students give up well-paying jobs and go into debt to get their MBAs."

Last winter, recruiters from investment banking houses who visited Sloan, Dartmouth's Amos Tuck, and Stanford business school couldn't fill interview schedules that had been swamped with eager applicants in previous years. One team of talent scouts from an investment house arrived at Sloan on the very day that an alumnus who had just been cut by the same firm appeared in the library to research new job opportunities. "Word like that gets around," says Stantial.

Campus disaffection with Wall Street was welling up even before Black Monday. Scandals like the Ivan Boesky affair raised questions about ethics. Moreover, says Stantial, students who interned on

Fluent in Japanese, MBA Brad LaPray (center) turned down Wall Street to work for TRW. He helps manage a joint venture with Fuji Valve Co.

the Street started complaining to their classmates about 80- and 90-hour workweeks spent as number-crunching drudges. Wayne Firsty, 25, who spent a year at Comex in New York trading silver before enrolling in Sloan's MBA class of '90, recalls those days: "It was easy to get caught up in the deals. But when I went home at night, I felt like I had been eating air." Now Firsty plans to go into manufacturing. Says he: "I want to make something real."

Partly in response to shifting student attitudes, business educators have begun to rethink their schools' curriculums, now heavily weighted toward financial skills. Many are looking for ways to introduce more material on international business, on manufacturing and operations management, and on ethics. Says John Rosenblum, dean of the Darden school: "This is the perfect time to change. We have the opportunity afforded by shifting student interests and the strength afforded by the popularity of MBA programs." (Roughly 67,000 graduate business degrees were awarded in June, compared with 21,000 in 1970.)

No single business has, as yet, inflamed campus passions quite the way investment banking did in the mid Eighties. The placement profiles of individual schools vary considerably, depending on each school's location and on longstanding relationships it may have with particular companies. To get a more comprehensive reading, FORTUNE combined the preliminary data on 1988 graduates from seven schools—the University of Chicago, Columbia, Harvard, Northwestern's Kellogg, Stanford, Tuck, and Wharton—that have standardized some of their placement reporting.

THE GRADUATES fanned out widely. (See chart.) Consulting, real estate, and manufacturing firms were the major beneficiaries. To understand why, you need only ask MBAs who have gone into these fields. William Johnson, 29, a Kellogg graduate, says he interviewed with investment banks but chose instead a job in real estate with Trammell Crow Co.: "They want me to knock on doors and learn the business from the customer. In three or four years, I'll have a chance to become a partner and take an equity position in projects."

Within the manufacturing sector, students understandably favored challenging and prosperous industries such as computers and pharmaceuticals. But just because an MBA picks a manufacturing outfit, don't assume that he or she is headed for a supervisory job in a factory. In fact, most go after positions in marketing or finance. David Rothschild worked four years as a consultant for Ernst & Whinney before attending Sloan. He now is a marketing manager, looking for ways to sell computers to schools for Apple Computer. Says Rothschild: "I didn't see any fun in Wall Street. When you watch kindergarteners trying to use a spreadsheet program, you feel you're having a different type of impact. It goes beyond making big bucks."

The torrid rate of increase in starting salaries of the past few years may be cooling, partly because the bidding from Wall Street has died down. For example, the Tuck school reports that the average starting salary for its graduates—$51,000—was 4% higher in 1988 than in 1987, when it was up 7%. The average paid by the manufacturing sector rose from $44,000 to $46,000, while the average in service industries rose from $50,500 to $52,500.

In the absence of a new Grail to replace investment banking, many students are sim-

REPORTER ASSOCIATE *Patricia A. Langan*

ply scratching their heads about what job to take. Elizabeth Meyer, director of Stanford's Career Management Center, says the big surprise at Stanford this year is the number of students who are sitting out the summer undecided about where to go next fall—about 33% of the class, compared with 23% at the same time last year. Says Meyer: "This is a nontraditionalist group who appear to have a different set of values. They have turned away from some of the usual careers and are going on long vacations. I hesitate to call it a trend because it could be completely different next year."

Indeed it might. But several career paths eagerly discussed on campus have the potential to become the new favorites. Much will depend on how well the blue suits now arriving in these jobs perform. If they do well, employers presumably will rush to hire more MBAs, salary competition will heat up, and new trends will be born. Passion is often piqued by rising pay scales.

JOSE FERNANDEZ

Would-be real estate king William Johnson shows his wares.

PERHAPS THE MOST intriguing new path is manufacturing management. Like young Wayne Firsty, a growing number of MBAs think they smell an opportunity, as well as a good cause, in going into the factories. Carnegie Mellon, for instance, reported that 12% of its 1988 class entered manufacturing operations this year, up from 5% last year. Says Colin Blaydon, dean of the Tuck school, which also saw a modest increase in students headed toward the shop floor: "With automation in the factory, quality control, and inventory management, manufacturing has more appeal. We're seeing a real comeback of interest among students."

One MBA who can testify to this is Virginia Deely, 26, a 1986 graduate of Carnegie Mellon. She entered business school intending to go into finance, but on graduation accepted an offer from General Foods after enjoying a summer internship in a Jello factory. Today she is production manager in a plant in Modesto, California, that makes Post cereals, Kool-Aid, and Country Time lemonade. Says Deely, who sometimes recruits MBAs for the company: "Two years ago the majority were more interested in money. Now they want challenge. A lot more are interested in manufacturing and engineering. It's back to basics. I think the yuppie craze is ending."

Would-be assembly line jockeys still come up against some heavy peer pressure, a more potent force in shaping career decisions than you might imagine from the apparent self-confidence of so many MBAs. Stacie Soule, 27, a Tuck graduate who now supervises manufacturing at a GM Packard Electric division plant in Clinton, Mississippi, that makes wiring for General Motors cars, says that some of her classmates thought "I was a bit off my rocker." Her GM supervisors even tried to talk Soule into working in a bigger plant in Ohio, where she would have had more visibility. But she believes that the Clinton factory is making innovative changes that she wants to master so she can transfer the technology to other plants. Soule considered a career in consulting, where starting salaries average about $60,000, compared with about $45,000 in manufacturing. But she says that in consulting she would have missed the "reality check—you never stick around to see if your idea works."

In response to their students' interest, many business educators are trying to beef up the courses they offer in manufacturing management and to encourage manufacturing companies to consider hiring MBAs for line operations. Richard Thain, University of Chicago business school dean of external affairs, organized a conference on manufacturing and the MBA last spring and was surprised when 40 companies and 160 students showed up. The Sloan school has organized a manufacturing management program underwritten by $40 million donated by nine major companies including Kodak, Boeing, and Digital Equipment. When the first class of 20 students completes the course in 1990, they will be awarded master's degrees in both engineering and business administration. Even at Harvard, the school of choice for many Wall Street trainees, student interest in manufacturing is on the rise. Says W. Earl Sasser, a professor of production and operations management who in his basement office in Morgan Hall helped keep the embers of manufacturing know-how from winking out at Harvard: "At last we're starting to get some respect." Harvard has added two new courses in manufacturing management. In the past three years, enrollment in such courses has jumped 50%.

MANY DEANS and placement officials still fear that MBAs and manufacturing make an odd couple. Edward Mosier, Carnegie Mellon placement director, says he senses a pretty broad awakening of interest among manufacturers for MBAs as agents of change. But recruiters for these companies also want potential hires to have a technical background, such as a bachelor's degree in engineering, or otherwise "it's a pretty hard sell." Students worry that career paths in manufacturing are insufficiently defined. Says Chicago's Thain: "Most manufacturers need top talent, but right now they can give only the muddiest idea of where operations managers can go. Our students are not the type to spring for that."

A second area of growing interest is in small to midsize companies or entrepreneurial ventures. Small companies that only occasionally have managerial posts to fill often don't enter the recruiting sweepstakes. As a result, many MBAs with this bent look first to jobs with venture capital firms as an avenue into smaller businesses. But Martha Craven, director of placement for Kellogg school, is trying to encourage what she calls "correspondence opportunities"—smaller companies invite MBA candidates to apply for positions by mail. Last year Kellogg received 873 such invitations, up from 843 in 1987.

Two years ago the University of Chicago

DOUG MENUEZ

Apples aren't for teachers only, as computer marketer David Rothschild demonstrates.

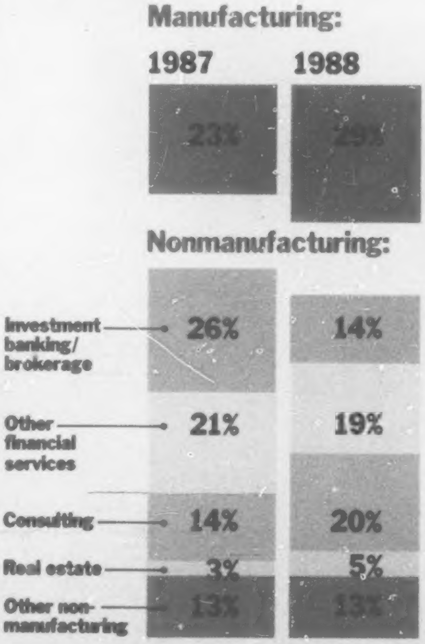
founded a nonprofit institution called Arch to form start-up companies for manufacturing and marketing new technology developed at the university and the Argonne National Laboratory in Argonne, Illinois. (A Federal law passed in 1980 permits private companies to exclusively license research paid for with taxpayers' money.) Chicago business school students can join in by conducting market studies and drafting business plans. So far 55 students have participated, and one company has been launched—HealthQual Systems Corp., which will soon market a laptop medical computer. "The charm of small companies," says Thain, "is that our graduates can go where they really shine—and maybe get a piece of the action."

Two who have succumbed to the siren song of entrepreneurship are Bill and Kate Duhamel, both recent graduates of Stanford business school. Kate worked for a time at Kidder Peabody, and Bill was a consultant for Bain & Co. and then a marketing manager for Tandem Computers. But early this year the 27-year-olds decided to strike out for the Black Hills of South Dakota for an opportunity Kate calls "irresistible." The Duhamels, together with some members of Bill's family, are in the process of buying out a 20-year-old cable television company, South Dakota Cable, located in Deadwood, South Dakota (pop. 3,000). Kate figures that subscriptions (about 10,000) in the franchise area can be expanded by as much as 15%, after which they plan to expand by acquiring other cable systems. "Bill will probably be president," says Kate. "We're basically comanagers, the titles are unclear." But Deadwood? "We like the area. We will be owner-managers with a good base to grow on. We are building equity and working hard, so it's rewarding. We're having fun."

International business has become a third focus of attention on campus, though the interest here may owe as much to the educators' view of the needs of American management as it does to student enthusiasm. Most schools are looking for ways to strengthen their curriculums with international subject matter in response to a perceived trend toward the globalization of business. Tuck, for instance, this September is opening a business school in Japan, where few such institutions exist. So far it has raised contributions from 800 Japanese companies. The students will be mostly Japanese, but the faculty will be half and half, the American professors rotating out to Japan on three-year assignments from Tuck. Colin Blaydon, Tuck's dean, says he hopes that Tuck professors returning from Japan will share their experiences with Tuck students. It's a start. Blaydon notes that in the 1920s, 30% of the school's elective courses were in international business subjects, compared with 10% today. But then in the 1920s, Tuck also required all students to study a foreign language.

WALL STREET'S LOSS

Grads of seven top schools are still drawn to high-paying consulting jobs, but more are going to manufacturing companies now.



The key to having a world-class corps of international business managers pretty clearly is fluency in foreign tongues. Multilingual MBAs will find opportunities aplenty. Take Brad LaPray, 28, a 1988 Carnegie Mellon graduate. He got a bachelor's degree in engineering from Brigham Young after taking two years off between his freshman and sophomore years to go to Japan as a Mormon missionary. At business school he intended to seek an investment banking job. He admits that he was discouraged by the October crash, but says that recruiters, including some from Goldman Sachs and First Boston, remained very encouraging because of his fluency in Japanese. "That was my only advantage," he says.

Perhaps, but what an advantage. LaPray was also approached by several Japanese companies ("They promote mostly Japanese to higher positions"), and had offers from consulting firms and manufacturing companies such as Boeing and McDonnell Douglas. In the end he decided against his first dream, investment banking, because "I wanted to watch my kids grow up." LaPray accepted an offer from TRW, where he is helping to mount a joint venture with Fuji Valve Inc. of Japan to build a new engine valve plant in Tennessee. When it is completed he will be responsible for production control, purchasing, information systems, and project management.

Some people can have it both ways. LaPray will be in both international business and manufacturing management. If the trends keep running his way, by the time this codger is 35, young graduates may look up to him with the awe once reserved for investment bankers. ■

HOW KING KELLOGG

The cereal champ lost its edge, then came roaring back. Now it has creamed its competitors and brought new life to a business everyone said was mature. ■ *by Patricia Sellers*

MONDAY MORNINGS AT 7:30 William E. LaMothe, the chairman of Kellogg, and 30 or so of his top executives sit down to a breakfast of cold cereal. They sample several bowls, each containing cereal from one of Kellogg's five U.S. cereal plants or from one of the company's 16 factories abroad. Using terms like "mouth feel" and "bowl life," they discuss flavor, appearance, texture, and if it's Rice Krispies, the sound of the snap, crackle, and pop. Each sample gets graded "satisfactory"—the top rating—"acceptable," or "BKSL," which means below Kellogg's standard level, and the comments are passed on to plant managers and quality control people. Tough judges, these consumers. On average only 12% to 15% of the cereals tested at the Monday breakfasts in Battle Creek, Michigan, earn satisfactory ratings.

"We're setting the highest standard to drive to," says LaMothe, whose name rhymes with "oath." An eight-year stint overseeing Kellogg's research and development turned him into an apostle of quality and prompted him to start the taste tests in 1979, when he became chairman. Truth to tell, the cereal maker had gotten out of touch with consumers too old to send in a Froot Loops box top and 50 cents for a Toucan Sam doll. It was underspending its competition in marketing and product development, and by 1983 its U.S. market share hit its low of 36.7%. A prominent Wall Street analyst summed up Kellogg as "a fine company that's past its prime."

Those were fighting words to LaMothe. "Past our prime?" he snorts. "We *loved* that." He and his managers became so obsessed with the remark that for the next year strategy sessions ended with someone

For Kellogg executives, breakfast in Battle Creek means a taste test. Says CEO LaMothe (fourth

PHOTOGRAPHS BY MICHAEL L. ABRAMSON

BEAT THE BLAHS

from left): "I can't remember our agreeing even to a small reduction in quality to save money."

asking, "How's *that* for a company that's past its prime?" Kellogg has gained five share points since it hit bottom, in a market where every point is worth about $42 million in revenues to the manufacturer.

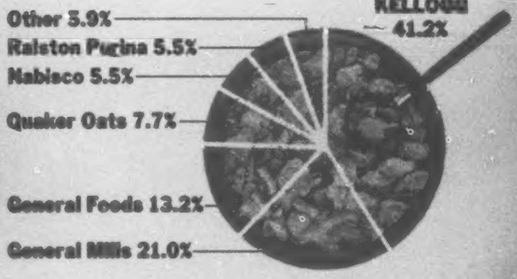
Another problem that confronted Kellogg and its chairman is one that many companies in fickle consumer industries face: what to do when your basic business stops growing. Some companies diversify their way out of the dilemma. Kellogg had bought two small businesses, Mrs. Smith's pies and Eggo waffles, in the 1970s, and industry analysts thought the company foolish for not diversifying further as General Mills and Quaker Oats were doing. Kellogg's critics, who saw baby-boomers reaching adulthood, noted that grownups do not eat much cereal, but LaMothe refused to heed their warnings that the market would mature in the 1980s. He decided to stick with the cereal business—and make that no-growth industry grow for Kellogg.

"I thought, what are these companies really getting out of diversification?" says LaMothe. "We looked at demographics and saw this big group—80 million baby-boomers. We knew they were health oriented, they were joggers. People said, 'Forget about them. They don't eat breakfast.' We knew they were too big to forget about."

Instead of concentrating on kids, cereal's

SCARFING DOWN THE BIGGEST SHARE OF CEREAL

Kellogg peddled about a billion pounds of cereal in the U.S. in 1987, almost twice as much as General Mills. Having risen from 36.7% of the ready-to-eat cereal market in 1983, it is now shooting for 50%.



SOURCE: PRUDENTIAL-BACHE SECURITIES

MARTHA STANITZ

LaMothe's kitchen cabinet: Langbo (left) runs international; Schroeder, North America.

customary customers, LaMothe zeroed in on this expanding adult population. By pitching cereal's convenience and nutritional value, Kellogg has helped persuade U.S. consumers age 25 to 49 to eat, on average, 26% more cereal than people that age downed five years ago. The "no-growth" U.S. ready-to-eat cereal market, worth $3.7 billion at retail in 1983, now totals $5.4 billion, and has expanded three times as fast as the average grocery category. "We're driving the cereal industry's growth," says LaMothe proudly. Adds David G. Owens, a consumer products consultant: "Kellogg has taken an unexciting growth prospect and made it exciting."

THE COMPANY'S revenues have swelled from $2.4 billion in 1983 to $3.8 billion last year. Foreigners are spooning up Kellogg's cereals too. Says executive vice president Arnold G. Langbo, who heads Kellogg's fast-growing international division (1987 revenues: $1.1 billion): "We've struck the word 'mature' out of our language."

Today LaMothe talks about raising Kellogg's U.S. market share to 50%, and his competitors don't know how to stop him. General Mills, the largest rival, sells mostly kids' cereals and hasn't snared more than 21% of the market for the past several years. But Kellogg has gained most of its market share at the expense of the No. 3 manufacturer, General Foods' Post division, part of Philip Morris. Post makes cereals for grownups, but it has not had a successful new product since 1982, and its market share has slid to 13.2% from 16.5% five years ago. Ralston Purina, RJR Nabisco, and Quaker Oats each control less than 8% of the industry. Says an executive at one of those companies: "We don't see any major areas of weakness in Kellogg that we can attack." Adds another: "These guys act like they want it all."

Indeed they do. Wall Street analysts who criticized Kellogg a few years ago now praise LaMothe for his commitment to the cereal business. Short and wiry, he started selling cereal on his hometown streets of Brooklyn after earning an economics degree from Fordham University in 1950. Like most Kellogg managers, the 61-year-old chairman is low key and serious, "a soft-spoken, no-nonsense high achiever," says former Ford Motor chairman Philip Caldwell, who sits on Kellogg's board. "He doesn't go around beating his chest." But LaMothe is a tireless worker—usually seven days a week and often at a stand-up desk in his office "to keep the adrenaline flowing," he says. His concentration is formidable and beamed relentlessly on the cereal business. LaMothe says that running a diversified company such as a Procter & Gamble "would blow my mind."

HOW DO YOU hitch up your market share and disprove the doomsayers? LaMothe has no formula, but his advice is instructive: "You have to have enough muscle to bring to the marketplace value-added products that really do offer the consumer something better, and then you've got to be able to tell the consumer about them. You have to have a strong franchise and continue to build on it." Spending to develop new products is key. Kellogg's R&D budget last year was $40 million, about 1.1% of sales, vs. General Mills' $38.3 million, or 0.7% of its $5.2 billion in fiscal 1987 revenues. With 47 cereals introduced worldwide in 1987, Kellogg launches twice as many new products today as it did five years ago.

The story of one of those new brands, Müeslix (pronounced muse-licks), illustrates how Kellogg is successfully pitching to the big kids products that are a lot more exotic than plain old Corn Flakes. Müeslix is dense, crispy flakes mixed with dried fruits and such unusual morning fare as hazelnuts. Horst W. Schroeder, 47, the German-born president of Kellogg North America, came up with the idea for Müeslix in 1986 only to be faced with terrific opposition from Kellogg's researchers, marketing department, ad agency—everyone, he says, except Bill LaMothe. A decade earlier the company had been singularly unsuccessful in getting Americans to eat *muesli*, a mushy, oat-based porridge that Schroeder had successfully launched for Kellogg in Europe. The skepticism, says Schroeder, " made it fun to prove Müeslix would make it."

Though he had never even tasted American-style cold cereal until he reached his 20s, Schroeder's task was to change Kellogg's European cereal to fit American tastes. Working closely with Kellogg's researchers, he created a toasted-flake mixture that bore little resemblance to the oat porridge that Americans found so unpalatable. Müeslix was launched last November with a $33 million marketing budget, an industry record. TV commercials feature Swedish actor Max Von Sydow touting the stuff as a "centuries-old balance" of healthy ingredients, "what breakfast was meant to be."

Like the milk on Rice Krispies, the money Kellogg pours into marketing gives all these products their snap, crackle, and pop.

Müeslix's sales have been running close to $100 million on an annualized basis, twice what Kellogg had projected. John M. McMillin, a food industry analyst at Prudential-Bache Securities, says repeat purchases are 25% higher than average for a successful new cereal, even though Müeslix costs about $2.89 for a 14-ounce box, vs. $1.55 for 12 ounces of Corn Flakes. Kellogg anticipated a loss the first year, but the brand is already making money and making Schroeder the odds-on favorite to succeed LaMothe as chief executive when the chairman retires, probably in 1991.

Under LaMothe, Kellogg has been especially good at attacking market niches with technologically innovative products. The company introduced Crispix in 1983 to get its spoon into Ralston Purina's Chex family of cereals, which had about $125 million in annual sales and no significant competition. Crispix, which bonds two grains in one bite-size cereal—corn on one side, rice on the other—had sales last year of about $65 million. Kellogg has cracked Nabisco's Shredded Wheat niche with a pantryful of products. Among them: Raisin Squares and other fruit-filled shredded wheat cereals, and Nutri-Grain Biscuits, a shredded wheat without preservatives.

INVESTOR'S SNAPSHOT

KELLOGG

SALES (four quarters to 3/31)	**$3.9 BILLION**
CHANGE FROM YEAR EARLIER	UP 14%
NET PROFIT	**$412.5 MILLION**
CHANGE	UP 19%
RETURN ON COMMON STOCKHOLDERS' EQUITY	**33%**
FIVE-YEAR AVERAGE	36%
STOCK PRICE RANGE (last 12 months)	**$38.00-$67.75**
RECENT SHARE PRICE	**$55.25**
PRICE/EARNINGS MULTIPLE	**16**
TOTAL RETURN TO INVESTORS (12 months to 7/29)	**−11%**

The commitment to creating new products has paid off abroad too, where the company competes with Quaker Oats, Swiss-based Nestlé, and many smaller concerns. Kellogg maintains its 50% share of cereal sales outside North America partly by developing new cereals for specific foreign markets. Just Right, a mineral-laden, multigrain flake now sold in the U.S., was created for health-conscious, athletic Australians, who are the world's third-biggest cereal eaters. (The Irish are first; the British, second; Americans, fourth.) For Japan, where many people still eat fish and rice for breakfast, Kellogg cooked up Genmai Flakes, made of whole-grain rice.

Like the milk on Rice Krispies, the money Kellogg pours into marketing gives all these products their snap, crackle, and pop. Annual spending has tripled since 1983 to an estimated $865 million, or 20% of sales. Most of that goes into brand-building advertising because Kellogg, the 800-pound gorilla in the cereal business, does not have to pay retailers so-called slotting allowances to get them to stock new products. These fees devour up to one-third of a new product's first-year marketing budget.

MUCH OF the ballyhoo goes into drawing adults to what only the kids used to munch. Kellogg began selling Frosted Flakes to grownups in 1984 with a campaign that claims, "Frosted Flakes have the taste adults have grown to love." Ad spending on the 36-year-old brand has doubled, and sales have roared ahead more than 40%.

Kellogg gets cash to outspend competitors by investing heavily in plant and equipment and financing its marketing and product development partly out of the resulting cost savings. Since 1983, Kellogg has quadrupled capital spending. This year's budget is close to $600 million. Manufacturing efficiencies have helped the company improve gross margins—total sales minus the cost of goods—to 49% from 41% five years ago. The food industry average is 35%.

Nothing better illustrates LaMothe's confidence in the future of the cereal industry than Kellogg's latest expansion plan: a new plant in Memphis that will increase domestic capacity as much as 35% and cost

REPORTER ASSOCIATE *H. John Steinbreder*

up to $1.2 billion. It will be the most expensive food-processing facility ever built. To put the cost in perspective, Honda spent $632 million to build its auto factory in Marysville, Ohio, and the most GE has ever spent on a plant is $1 billion.

THE PROTOTYPE for Memphis is a factory called Building 100, erected as part of a modernization of the Battle Creek operations where W. K. Kellogg began churning out Corn Flakes in 1906. Building 100 started up in February, and it is the most efficient cereal factory in the world. Kellogg, which stopped taking the public through its plants in 1986 after it found two European competitors on a Battle Creek tour, gave FORTUNE a look at Building 100 in June. It was the first time anyone not directly associated with Kellogg had been inside. Each of its four floors is larger than a football field, and when you stand on the 50-yard line peering in every direction, the degree of Kellogg's cost cutting becomes comprehensible. Not a human is seen. Seven days a week, 24 hours a day, computer-monitored machines perform every step of the cereal-making process, from mixing the grains to packing the boxes in cartons.

The technologically advanced equipment helps Kellogg improve product quality. For example, the new production line for shredded cereals minimizes handling of those fragile Nutri-Grain Biscuits. The computerized ovens cook huge sheets of the biscuit mixture evenly—no burnt edges—and other machines slice them neatly into bite-size pieces. Building 100's products are 20% to 25% more consistent in quality than cereal that comes out of Kellogg's older plants.

Loyal customers, plus new cereal eaters, boosted profits 24% last year, to $395.9 million, and helped the company rack up a stunning 33% return on shareholders' equity, vs. a median of 16% for the food companies in the FORTUNE 500. Industry analysts expect earnings to rise more than 20% this year. Though LaMothe is tenacious about expanding Kellogg's home market, international operations should provide most of the company's growth. In all but five nations in the world, breakfasters consume less than two pounds of ready-to-eat cereal a year, vs. an average of 9.6 pounds in the U.S. Kellogg, which sells in 130 countries, thinks it can raise international volume 7% to 10% a year, compared with 3% to 6% in the U.S. Not bad for a company past its prime. ■

COMPANIES TO WATCH

KINETIC CONCEPTS INC.

STEVEN PUMPHREY

Kinetic's bed can cushion a patient's pain.

■ Many hospital patients are subject to complications such as bedsores and pneumonia that can cause discomfort, even death. Kinetic Concepts claims that the specialized beds it rents to hospitals help reduce these problems and can speed a patient's release. One electronically controlled model gently inflates and deflates air cushions along its length, an undulation that reduces pressure on any one part of the body and allows increased blood flow to the skin. The company says this can prevent bedsores and alleviate the pain experienced by burn victims and others who must lie on top of their wounds. Another of Kinetic's beds (above), designed for patients who must remain immobile, rocks them from side to side to keep the body fluids moving. That can help avert pneumonia. Analyst Joy Thompson of the Atlanta brokerage firm Marshall & Co. believes that the U.S. market for such superspecialized beds—which rent for up to $150 a day each—could grow from $350 million annually to $1 billion in five years. She expects Kinetic to nearly double its profits in 1988, to $29 million on sales of $167 million. Its shares trade over the counter.

NU-WEST INDUSTRIES INC.

■ Economists think 1989 may be the year that fertilizer ends up smelling like roses, as farmers plant more acreage to compensate for bad harvests. The outlook is so promising that Nu-West, a Denver producer, is planning to go public in October. CEO Cleve McCarty, 63, founded the company just last year, buying a shut-down Idaho plant that produced high-phosphorous fertilizer used on the wheat and corn crops. He recalled laid-off workers, renovated the plant, and then added speciality fertilizers for fruits and vegetables. In May the company bought a second factory and began shipping to India and Spain. Says McCarty: "It is planting time somewhere in the world all the time." He expects earnings to rise over 300% this year, to $30 million on sales of $200 million.

SEA CONTAINERS LTD.

■ Expanding world trade has brought new buoyancy to this Bermuda-based lessor of seagoing cargo containers. The outfit, which also leases ships and runs ferries, sat dead in the water in 1986, stalled by a sudden oversupply of containers. The company survived by tightening operations and dropping unprofitable ferry routes. Now demand for containers far outstrips supply, and profits topped $43 million last year. Security analyst Michael Carstens of Tucker Anthony in New York believes the stock's price, recently $25 a share on the New York exchange, could almost double within a year.

IDB COMMUNICATIONS GROUP INC.

■ This uncommon carrier, though just a pipsqueak compared with AT&T, has grown 90% since 1986. Security analysts say IDB's net income could rise 45% this year, to $2.6 million on sales of over $20 million. Using a network of satellite earth stations and transponders, IDB transmits television, radio, or data signals for the TV networks' news divisions and other customers. The company started out in 1983, sending live sports coverage back to teams' hometown radio stations. IDB now transmits almost all the major sports leagues' away games. The company, whose shares trade over the counter, routinely delivers such TV programming as *Wheel of Fortune*, and U.S. news networks used its dishes to provide live coverage of the recent Moscow summit.

– Sarah Smith

■ TOP WOMEN MANAGERS • CEO POLL • WILL JAPAN GAIN TOO MUCH POWER? ■

SEPTEMBER 12, 1988 $3.50

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THE BILLIONAIRES

Who They Are, How Much They Have, How They Got It

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SEPTEMBER 12, 1988

FORTUNE

LANE STEWART

Enthusiastic falconers, Dubai's ruling family patronizes a variety of sports, even snooker.
COVER STORIES/
PAGE 46

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Most acquisitive by George Lange; most flamboyant, Harry Benson; most charitable, Doug Menuez—Picture Group; oldest, Nikkei Venture; richest woman, Syndication International; richest person, Thomas Hoepker—Woodfin Camp; richest American, Greg E. Mathieson—MAI; youngest, Joe McNally; most frugal, Robin Moyer; most unpretentious, Rob Nelson—Picture Group.

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"If the worst thing this induces is one more visit to McDonald's, it's not a threat to the republic."

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SHERBOW—UNIPHOTO

Bush picked Quayle partly because he did not want to be upstaged by someone more senior and experienced.

PAGE 111

"I make the time by giving up sleep."

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"We should not be running around with our dukes up, yelling at Roger Smith about Perot."

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Takeshita's government will for the first time exceed the U.S. as the world's biggest foreign aid donor.

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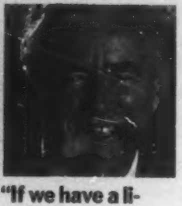

"If we have a liability, we'll pay. But we will not accept what I call extortion."

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U.S. manufacturers are finding the cure, and here's their prescription: Cut costs, and tell your suppliers to keep their prices down. If they wriggle, let them go. *by Louis S. Richman*

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EDITOR'S DESK

THE RICH make irresistible reading; the very rich even more so. Julie Connelly, who edited our special report on the world's billionaires beginning on page 46, muses: "Not having to worry is what makes billionaires different. Even millionaires have to make choices. What would life be like if you didn't have to worry about money?"

NINA BARNETT

Fortune finders Fierman, Farnham, Connelly, and Lieblich

In our second annual survey of the ultrawealthy, we have uncovered 129 individuals and nuclear families worth $1 billion or more—including 41 new entries. To Connelly, the $320.6 billion in assets that these fortunate few can count on means more than unparalleled influence over how the world is fed, clothed, entertained, and governed. It also represents a happy lesson in capitalism. "To a great degree," notes Connelly, "we're not looking at established wealth here but first- and second-generation money."

To find the billionaires, FORTUNE assigned scores of reporters, foreign correspondents, analysts, and consultants to interview well-placed sources and comb public records. Reporter Julia Lieblich spent four months pulling together this king's ransom of information from around the globe. The result is the most comprehensive and accurate examination yet of billionaires and their wealth.

It is also the most candid and personal, thanks to our resourceful correspondents. In Tokyo, reporter Sally Solo brushed up her *keigo*, the polite form of address and bearing that Japanese use with their superiors. Her rapport with Rinji Shino, a 79-year-old bus and shipping tycoon, was instantaneous. "He said he was too busy to play golf on his own course," she recalls, "yet he spent four hours with me."

Associate editor Jaclyn Fierman and reporter Alan Farnham wrote major stories in our package, ably assisted by associate editor Wilton Woods and reporters Darienne Dennis, Susan Caminiti, Rahul Jacob, Reed Abelson, Trey Loughran, Mark Colodny, and Charles Krusekopf. Assistant picture editor Eric Godwin, photo assistant Alix Colow, and designers Barbara Smyth and Jean Held are responsible for what Connelly calls the report's "suitably lush look."

Reporter Lieblich, who wrote our introduction and was in charge of the 13-page ranking of billionaires, marveled at the incongruity of her task. She has written a book on Roman Catholic nuns, *Holy Women: Lives of Devotion and Defiance*, to be published this winter by Soho Press. Says Lieblich: "It was a little shocking to switch to this from writing about women who take a vow of poverty." Lieblich's favorite billionaires are philanthropists like Warren Buffett and David Packard. "I would love to introduce some generous billionaires to the nuns I know," she says. "Just imagine them pooling their resources!"

Marshall Loeb
MANAGING EDITOR

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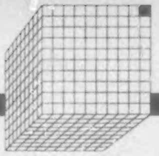
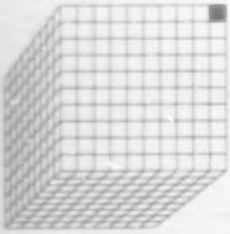


THE BILLION

WHO? HOW? HOW MUCH?

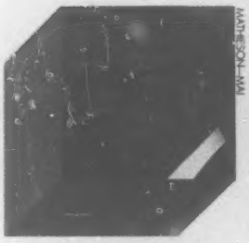
How big is a billion? Think of the entire cube as being one billion, the small red cube as one million: $1 billion is a thousand $1 millions.



THE LESSON to be drawn from the people who make up FORTUNE's roster of billionaires this year is that the kid next door can still grow up to be the billionaire on the block. So George Washington never slept in your house? Your grandfather didn't summer with the Vanderbilts? Don't despair. Among the 129 individuals and nuclear families that make up this year's list, self-made men and women rival heirs to family fortunes, and first- and second-generation immigrants abound.

The age of the moguls is never over. Every era offers opportunities for the creative, the driven, and the enterprising. Yesterday's railroad barons are today's media magnates. Look at cable-TV billionaire Jack Kent Cooke. "I don't go for that Horatio Alger crap," he says, but he started out selling encyclopedias door to door.

The richest person on the 1988 list is still the Sultan of Brunei. The price of oil has zigged and zagged by about $4 a barrel since last year, but he's still worth $25 billion. If you can't have oil, candy is dandy. This year FORTUNE penetrated the secrecy that shrouds Mars Inc., the maker of Milky Ways, to refine our estimate of the worth of the Mars family, which owns the company outright. The latest figure: an astounding $12.5 billion. FORTUNE calculates that Mars has annual sales of at least $7 billion. Our estimate of the company's value is based on what comparable food concerns have recently sold for. Thus, Forrest Mars and his three children, Forrest Jr., John, and Jacqueline, overtake the Newhouse publishing magnates as the richest Americans.



MATHESON—MAI

RICHEST AMERICAN
Forrest E. Mars, 84

SIPA PRESS

THE RICHEST
Sultan of Brunei, 42

The wealth of the billionaires on FORTUNE's roster spans 25 countries on six continents. If the monarchs and moguls pooled their $320.6 billion in assets, they could finance the U.S. military for a year, even if hammers really did cost $435 apiece, and still have enough left over to wipe out the collective debt of Colombia and Ecuador.

A team of 48 reporters and foreign correspondents, and hundreds of analysts and consultants, combed the world in search of billion-dollar portfolios. This year's list is the most comprehensive and reliable ever compiled. The 1988 money manifest reaches from youngster William Gates, the 32-year-old who co-founded and

AIRES

owns 40% of the software producer Microsoft, to oldster Tamesaburo Furukawa, who at 98 still manages Nippon Herald Films (see The Asians, page 66).

It includes two queens—Britain's sovereign is the world's richest woman, with a personal fortune of $8.7 billion—six heads of state, industrialists, retailers, real estate speculators, and an artiste or two living off the family trust. They run hundreds of companies employing millions of workers throughout the world. Megabucks in hand, they wield extraordinary influence over educational, cultural, and political institutions.

Some famous names didn't make the list. It is limited to individuals and nuclear families whose net worth—what they own minus any debt they owe—equals $1 billion or more. The Peugeot car clan, for example, may reach the billion-dollar rank collectively, but when you divide up the assets among dozens of cousins, a billion dissolves into mere millions. Deposed dictators, Mafia kingpins, and cocaine smugglers failed to make the cut. They've got money all right, but their riches are hard to prove and impossible to trace.

GEORGE LANGE

MOST ACQUISITIVE
Donald J. Trump, 42

THE BILLIONAIRES' CLUB is more exclusive than many realize. The Croesus of Brazilian television, Roberto Marinho, is commonly dubbed a billionaire in the press. In reality he is worth only $800 million. Olivetti Chairman Carlo De Benedetti certainly acted as if he had billions when he tried to buy the shares of Société Générale de Belgique earlier this year. But De Benedetti is actually worth less than a billion. Financier Carl Lindner owns American Financial Corp. with his family. But his $8 billion in assets are offset by liabilities of $7.4 billion.

Among the 41 new entries on this year's list is Donald Trump. That bashful real estate tycoon claims he is worth $3 billion or so. But subtract for his debt, and the figure is more like $1.3 billion. That's still plenty to pay the tab for a 282-foot floating palace known as the *Trump Princess*, the Plaza hotel, and the Taj Mahal casino in Atlantic City—purchases that make him the most acquisitive billionaire.

Fifteen European families joined the club this year. With the help of *Bilanz*, a Swiss business magazine, we added several cagey richniks of Switzerland and Liechtenstein—countries whose laws help citizens conceal their wealth. Two Turkish manufacturers, Vehbi Koç and Sakip Sabanci, were relatively unknown until correspondent Mehmet Ali Kislali checked out everything from what they owe to what they eat for breakfast. Koç takes a glass of water with honey, while Sabanci quaffs sugarless tea and nibbles plain white cheese.

Japan's rising yen and real estate values contributed eight new Japanese to the list. Meet Isao Nakauchi, an avowed capitalist who has a curious penchant for spouting Maoist sayings—his favorite: "What is the bastion of iron? It is the masses."

A billion-dollar nest egg should be enough

BRIAN LEATART

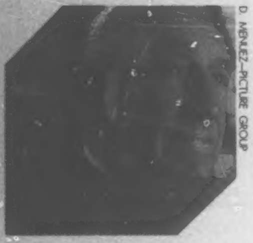
THE YOUNGEST
William H. Gates III, 32

NIKKEI VENTURE

THE OLDEST
T. Furukawa, 98

HARRY BENSON
MARTIN SEYMOUR

MOST FLAMBOYANT CONSORTS
Leona Helmsley, 68
Gloria Thurn u. Taxis, 28



D. MENDEZ—PICTURE GROUP

MOST CHARITABLE
David Packard, 76

ROBIN MOYER

MOST FRUGAL
Li Ka-shing, 60

NELSON—PICTURE GROUP

MOST UNPRETENTIOUS
Sam Moore Walton, 70

to insulate any nabob from the nastier side effects of stock market crashes or currency fluctuations. But of the 10 families who fell off last year's list, several owe their ex status to a couple of very scary days last fall on the New York Stock Exchange. Among them: Don Fisher, whose stock in the Gap was stone-washed by the October gyrations, and Milton Petrie, whose Petrie Stores are worth little more than half their value a year ago. Even Arabs lamented Black Monday. The ruling Al Sabahs of Kuwait are about $1 billion poorer this year because of their foreign investments. But they still have $4 billion.

COMMUNICATIONS CZARS barely felt the crash. They bought in early and rode the trend. "Prices for media properties have increased five- to 15-fold in the last 15 to 20 years," says Haskel Benishay, professor of managerial economics at Northwestern's J.L. Kellogg Graduate School of Management. "TV stations that used to sell for $500,000 are going for $3 million to $7 million. We have a new cadre of media billionaires."

America's Newhouse brothers, Canada's Kenneth Thomson, Britain's Robert Maxwell, Australia's Kerry Packer, and West Germany's Reinhard Mohn are among those who are gobbling up properties and getting fat off the profits. Rupert Murdoch recently agreed to buy Triangle Publications, publisher of *TV Guide*, from fellow billionaire Walter Annenberg for a staggering $3 billion.

Examining how the cadre spends—or doesn't spend—its fortune can be a lesson in living. Consider Leona Helmsley and Gloria Thurn und Taxis, two flamboyant wives of older, indulgent billionaires. Leona calls herself the queen (for more on the Helmsleys, see The Americans, page 49), but Gloria's title of princess is real. A beautiful but impoverished noblewoman, she married Europe's largest landowner (net worth: $2.7 billion) eight years ago. Now she dances her nights away in outlandish costumes at lavish balls among guests who include dress designers, hairdressers, and press agents.

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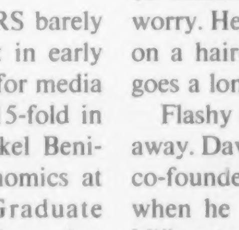
Yesteryear's Rich **105**

Frugality is the hallmark of Li Ka-shing, owner of a Hong Kong trading conglomerate. "My living standard in 1962 was higher than it is today," says Li, who is worth $2.5 billion but who dwells in the same modest two-story house he acquired 20 years ago. "A simple life is more enjoyable." Wal-Mart's Sam Walton agrees. This unpretentious retailer lost nearly $2 billion the week after the crash. Not to worry. He drives a Ford pickup and spends $6 on a haircut, so the $7.4 billion he has left goes a long way.

Flashy or frugal, the superrich are giving it away. David Packard (net worth: $2.2 billion), co-founder of Hewlett-Packard, led the pack when he announced plans to contribute $2 billion to a foundation dedicated to causes supported by his late wife. Canada's Reichmann family (net worth: $6.3 billion) tithe to charity each year.

BUT ARE THE RICH happy? you ask as you read about bitter divorces and brutal kidnappings. Do extravagant parties and ancient castles compensate for highly publicized family feuds?

"Absolutely!" says Robin Leach, host of *Lifestyles of the Rich and Famous*, the TV show that glorifies their lives. "The rich have an ease of living. They never schlep their clothes to the cleaners in the rain. They send James. We yearn to hear that they are miserable because they've got it and we don't. But most of the billionaires I've met are having a grand old time." Self-made billionaires have more than money: They own the magic that produced it. **– Julia Lieblich**



DANIELS—GAMMA/LIAISON

THE RICHEST WOMAN
Queen Elizabeth II, 62

THE AMERICANS

Their tastes run from Limoges to paper plates. But U.S. billionaires share a hard-bitten work ethic. Many are immigrants; most are self-made.

LIONS AND FAWNS may once again walk the halls of New York City's Plaza Hotel if **Ivana Trump** has her way. Very rich ladies used to bring along such exotic pets when they stayed there. But the carriage trade snubbed the place long ago, especially after the Plaza joined the Westin chain in 1975. Ivana is determined to bring back the old-money set now that her husband, Donald, a nouveau-comer to FORTUNE's 1988 list of billionaires, has bought the fabled inn.

Funny thing about America's billionaires. Most of the 51 families who constitute the club—and account for nearly 40% of the total list—are anything but old money. Some are simply too young to be old. **William Gates III**, 32, taught himself computer programming at age 13 and later dropped out of Harvard to cofound Microsoft. Many came up the hard way, forging empires from products as prosaic as meat and potatoes. Some are already launched on their second and third careers as moneymakers. Dirt still lodges under their fingernails, and they appreciate the land that has rewarded their labor so generously. America's homegrown royalty, they are bound by sweat, not bloodlines.

Stop at a billion? No way. America's richest are doggedly devoted to increasing their millions. Quintessential example: candy czar **Forrest Mars**, 84, the richest American, who started a new company when he was in his 70s. Called Ethel-M, it makes liqueur-flavored chocolates. Sons Forrest Jr., 57, and John, 52, run Mars at two speeds, they say: "Fast and faster." And no one could accuse the lady Trump, 40-ish, of lazing about. As the Plaza's new president, the ex-model and Olympic-class skier leaves her Fifth Avenue triplex just before 9 A.M., walks two blocks to her hotel office, and calls it a day around 5. Quoth Ivana: "I would simply die if I were just a social lady."

But at the Plaza, Ivana is definitely reaching for the blue bloods. "I want to revive the Eloise cult," she says. Eloise, you recall, was the fictional 6-year-old who lived in the Plaza and absolutely adored room service. Her requests were never boring: "Would you kindly send one roast-beef bone, one raisin, and seven spoons to the top floor and charge it please?" The well-heeled Mary-Jane set should be pleased to know that Ivana is building them a ballroom suite and preparing menus for their precocious tummies.

If the haute clientele still finds the owners a trifle déclassé, they'll have to let another generation or so refine them. Billionaires don't have time to cultivate the airs that winters at the right school and summers at the right shore will breathe into their children. They tend to start off more in the spirit of Cornelius Vanderbilt, the 19th-century steamship and railroad tycoon whom one historian described as "rustic and coarse in speech, his talk interlarded with profanity and slang of the wharves."

The Trumps are regilding the Plaza Hotel, New York City's lily.

GEORGE LANGE

Even so, elegant partying comes easily to billionaires, despite their workaholic ways. New York pet-food prince **Leonard N. Stern**, 50, breaks bread with friends and business associates at least three times a week at his six-story mini-castle on Manhattan's Fifth Avenue, the last private house on the block. When you get invited to a billionaire bash, remember to go hungry. The menu at a recent fete aboard *Trump Princess*, the couple's 282-foot yacht: 25 hors d'oeuvres and 37 main courses, including quail-eggs Benedict.

How do America's highest livers beat the bulges? Some exercise dutifully, like CBS chieftain **Larry Tisch**, 65, who rides a stationary bicycle while watching his morning news broadcast. But a fair number are armchair athletes who have bought, rather than joined, the teams. The rather creaky lineup includes: media nabob **Jack Kent Cooke**, 75, owner of the Washington Redskins football team; Missouri brewer and baseball maven **August Busch Jr.**, 89, of St. Louis Cardinals fame; and the Miami Heat's **Ted Arison**, 64, who brought cruising to the masses and professional basketball to Florida.

Perhaps because they embody the American dream, they love the country where each found a street

At 79, Spudman Simplot is still finding new fish to fry.

GEORGE STEINMETZ

paved with gold. Idaho spud king **Jack Simplot**, 79, has crowned the hill he lives on with a 50-foot flag; it flaps so loudly in the wind that neighbors in the valley below have complained. Czechoslovakian-born Ivana Trump became a U.S. citizen just this year. No longer does she take the Concorde to Paris to view the fall fashions. "I plan to buy only American designers now," she says firmly.

PATRIOTISM is about the only common ground between the Trumps and the Simplots. A slick, urban promoter, **Donald Trump**, 42, helped inspire the creation of Gordon Gekko, villain of the movie *Wall Street.* New York City Mayor Ed Koch, fed up with Trump's incessant requests for tax abatements on his Manhattan hotel and condominium projects, calls him "piggy, piggy, piggy." Across the country, where the buildings are low, the space is wide open, and the earth is generous, lives Simplot. Put simply, put *his* way, he is just "a goldurn potato farmer."

An eighth-grade dropout, Simplot had enough native intelligence to devise a business as elegant and seamless as baroque music. He wastes nothing and leaves nothing but the weather to chance. Drowning in potato peels, he bought cattle to eat them. To increase the crop, he made fertilizer with the cow dung and phosphates. To ensure adequate phosphate supplies, he opened a mine. Already a billionaire and pushing 80, McDonald's biggest french-fry supplier could have called it quits. He didn't. "Honey," he says, "I just have a ball every day. I've got a thousand irons in the fire."

This year the resourceful Simplot thought of a way to profit from the geothermal wells beneath his land. Needless to say, the idea fits neatly into the Simplot chain. He will tap the water, build lagoons, and raise sweet, tropical fish called Tilapia. They will eat—like it or not—pellets made with potato byproducts.

The idea of building an empire on interdependent links would rattle **David Murdock**, 65, a West Coast conglomerator who owns 40 disparate companies, including Castle & Cooke, the world's leading producer of pineapples, bananas, and nuts, and Stair & Co., a London and New York City antiques dealer. Murdock, who is dyslexic, dropped out of school before he was legally old enough to work. But he survived by drinking skim milk, which was cheaper than whole milk, digging ditches, and pumping gas. He eventually went into business for himself, slinging hash at a roadside restaurant in Detroit.

THE DINER was a minor success, but Murdock was hungry for more. With a few thousand dollars in his pocket, he headed southwest for Phoenix. There he made a fortune developing commercial office buildings for the boom town. By age 40 he was worth $100 million. The next year the real estate market crashed, and Murdock lost his shirt. Never again would he bet it all on a single business.

The experience left him shrewder and less predictable, a deadly combination for his adversaries. In 1984, with 5% of Occidental Petroleum stock under his belt, Murdock urged Chairman Armand Hammer to step down and let a younger man—guess who?—take over. Calling Murdock "a business barracuda," Hammer refused to take the bait. Instead he paid the upstart $53 million in greenmail and told him to get lost. But Murdock had the last word: He had a four-foot barracuda stuffed, framed, engraved with best wishes, and delivered to Hammer on his 90th birthday.

"Call me barracuda. But don't call me a

Raider Harold Simmons, who plays tennis with Michael Milken, has captured 50 companies.

KENT BARKER

corporate raider," insists Murdock. The term rubs the fellow the wrong way. Too ungentlemanly, perhaps, for a diminutive (5-foot 6-inch) ex-ditch-digger who now raises Arabian horses, collects antiques, and owns the Regency Club, the classiest private dining establishment in Los Angeles.

En route from pet food to publishing, Leonard Stern tried real estate.

ANDY FREEBERG

Harold Simmons, Murdock's Texas counterpart, is *proud* to be called a raider. If you haven't heard enough about him to call him anything, that suits Simmons just fine. He prefers a low profile so he can surprise his prey, which so far includes a sugar producer, an Oregon timber company, and some 50 other victims. "I'm just your ordinary run-of-the-mill billionaire," he says. Not exactly. At 57, he plays a respectable game of tennis, stoop shoulders and all. One of his partners—on and off the court—is Drexel Burnham's junk bond king, Michael Milken, who raised a $500 million war chest for Simmons. Says he: "Mike and I play a very close game."

Simmons, who learned to spot undervalued assets as a loan officer for Republic National Bank of Dallas, found the balance sheets of drugstores especially value-laden, and in 1961 he left banking for raiding. Twelve years later he had a chain of 100 pharmacies. But counting money intrigued him more than counting pills. He figures that in the past 15 years, he has added over $5 million a month to his net worth. That works out to about $164,000 a day, more than twice what the average independent drugstore earns in a year.

A change of heart in midcareer can befall anyone, even billionaires. Brooklyn-born Leonard Stern, oft written about as a real estate developer, has become a member of the fourth estate himself. His pint-size publishing empire includes the *Village Voice*, New York City's bible for young liberals and aging lefties, and the brand-new *7 Days*, a weekly that tries to give fast-track achievers a quick take on what's in and what's out in Gotham. In or out, over 75,000 New Yorkers receive the paper gratis.

Stern's career has yet a third leg. He started his climb at the Hartz Group Inc., the pet products company his father started with 2,100 canaries—Max Stern's only baggage when he emigrated from the Harz Mountain area of Germany in the Thirties. Leonard took over in 1959, fresh out of New York University. He made the business sing, expanding the product line to more than 1,000 items.

In 1968 young Stern bought 750 garbage-strewn acres for $13,000 apiece in a swampy stretch of New Jersey. More seasoned developers considered it a dog of a deal, but Stern knew his canines. Called the Meadowlands, it is today the flourishing site of Stern's industrial parks, office buildings, and condominiums, and the land alone is worth about $500,000 an acre.

Like fellow billionaires **Warren Buffett**, 58, the Omaha stock market wizard, and **Walter Annenberg**, 80, who just struck a deal to sell his publishing empire to **Rupert Murdoch** for $3 billion, Stern intends to give away most of his $1.4-billion-dollar fortune. "It's either that or ruin your kids," says the father of three. His pet charity, appropriately enough, is Homes for the Homeless, which provides shelter for thousands of New Yorkers.

ONE WAY to prevent billion-heirs from becoming wastrels is to employ them in the family business. The results can be both felicitous and profitable. Atlanta was especially pleased last year when media baronesses **Anne Cox Chambers**, 68, and her sister **Barbara Cox Anthony**, 65, the richest women in America, designated Barbara's son, James Cox Kennedy, 40, to run the company. Cox Enterprises' flagship papers, the *Journal* and *Constitution*, had been losing oomph, readership, and advertisers. Salaries were too low and budgets too tight to generate great journalism.

continued

Micky Arison is now at the helm of his dad's billion-dollar cruise line business.

GERALD DAVIS

DOUGLAS KIRKLAND—SYGMA

Trial awaits Queen Leona and her king.

JOE McNALLY

Youth was not wasted on baby-faced billionaire Bill Gates.

Looser with the purse strings and harder hitting with his stories, Kennedy is making headlines. This year the *Constitution* won a Pulitzer Prize, the most coveted award in the business, for its political cartoons. Says Kennedy: "I care very deeply about the company. It is my heritage."

REVAMPING a billion-dollar image can take a little time, but sullying one is a snap. **Leona Helmsley**, 68, the queen who, as her ads say, "stands guard" over her husband's hotel business, is now just a lady in waiting for her trial to begin on September 14. Last April, Leona and her husband, **Harry Helmsley**, 79, were indicted on charges of tax evasion, mail fraud, conspiracy, and kickbacks. The duo, who have pleaded not guilty, allegedly wrote off as business expenses millions of dollars in renovations to their 26-acre estate in Connecticut. One can only assume that billionaires have cash flow problems too, even those who keep a 640-cubic-foot safe deposit box at home.

Leona is Harry's second wife; Harry, her third husband. The face in the old Chesterfield cigarette ads, Leona quit modeling and took up real estate. So successful was she at peddling condominium apartments for Helmsley that she rose to president of her division. Eventually even the boss bought the Leona pitch. Suddenly Harry shook his sedate, suburban demeanor and took to the dance floors with his ostentatious mate, astounding friends and fellow Quakers.

Leona taught Harry to spend his money, the remainder of which she stands to inherit when he dies. Among their possessions: a private jet whose interior, down to the seat belts, is trimmed in gold leaf, and a 550-square-foot mausoleum in the Bronx. Overarching the tomb that they built as their final resting place is a stained-glass rendering of the New York City skyline Helmsley helped to develop.

Big as they are, billionaires are bound to antagonize some folks. Remarks a rather refined member of the club about Donald Trump: "His is the kind of flamboyance that could make the masses rise up and riot." Competitors resent their success; retailers and distributors, their strong-arming. Labor unions have decried some for their penny-pinching ways.

The Arisons, whose Carnival Cruise Lines transported half a billion pleasure seekers to the Bahamas, the Caribbean, and Mexico last year, have had bitter confrontations with the National Maritime Union of America. The ships, says union president Shannon J. Wall, are anything but love boats below deck. In a letter to the editor of the New York *Times*, he called Carnival Cruise Lines "one of the grossest exploiters of powerless Third World crews."

Ted Arison and son Micky, who now operates the business, admit they run a tight ship. But they maintain that their staff is neither underpaid nor overworked. And they make the unassailable claim that their business enriches the lives of many. "Some people sell widgets," says Micky, 39. "I sell fun." The Israeli-born Arison team made $1 billion in 15 years by luring the middle class aboard for seven-day cruises that offer beer-drinking contests, shuffleboard, and gambling.

Flawed they may be. But America's most accomplished entrepreneurs have much to recommend them. They employ, house, wine, dine, clothe, and surely entertain millions of Americans. They are capitalism's heroes. And they remind us that what sets apart a billionaire is not necessarily quality, but quantity. – **Jaclyn Fierman**

Once David Murdock dug ditches; he now digs horses and antiques.

DAVID STRICK—ONYX

THE EUROPEANS

DYNASTY. To Europe's long-established families, the word means centuries of riches, carefully husbanded and handed down, one generation to the next—riches earned by service to one's king, by shedding heathen blood, and by quelling peasant uprisings. But to Europe's newest billionaires, dynasty means something else: a TV show with Joan Collins.

Television magnate **Silvio Berlusconi** owes his $2.5 billion fortune—Italy's largest, built over 20 years—not to any king, but to his own uncanny skill at judging what programs Italians want to watch. These include a show where contestants play strip roulette (guess what the losers do), a variety program featuring giantess Brigitte Nielsen, and a froth of U.S. soaps, sitcoms, and serials, including *Dallas* and *Rin-Tin-Tin.*

A cabaret singer in his youth, Berlusconi ("the Italian Merv") discovered a legal loophole that let him start competing in 1978 against Italy's bland and boring state-run channels, which had enjoyed a monopoly. Last year his network pulled in 63% of all Italian ad revenues, or almost $1.5 billion. "And I own it all," he says. At home in a former Benedictine monastery, Berlusconi, 52, leads a nonmonastic life with raven-haired actress Miriam Bartolini, in her 30s. Stainless-steel doors slide noiselessly apart to reveal his sanctum, furnished in early James Bond: a massive, white tectonic slab of a desk, with a private screening room downstairs that has nine monitors all going at once.

This summer, Berlusconi won the right to sell Western commercials on Soviet television. Though he expects to negotiate similar deals in Eastern-bloc nations and China, projects closer to home have not always gone smoothly. With **Jérôme Seydoux** and others, he launched France's first private TV channel, France Cinq, in 1985. Political opponents in France charged the group used Seydoux's government connections to get a sweetheart deal, and Berlusconi was forced to reduce his stake in the venture from 40% to 25%.

The Seydoux fortune comes from Schlumberger, originally the world's largest oil prospecting company, which has lubricated the family's pockets with $1.1 billion. Jérôme, the head of the family at 54, runs Chargeurs, a conglomerate, while his sister, Véronique, dabbles in charity. Brothers Nicolas and Michel make movies. Though the Seydoux clan leans politically to the left and also has connections with François Mitterrand, these proved useless when the government ordered Chargeurs to hire more workers in 1982. The lesson? Surely that ties to a head of state, however close, are never the same as *being* head of state.

Socialist Jérôme Seydoux believes making money is a virtue.

MICHEL DELUC—EXPANSION

> Today's dynasties are but a generation or two old, and fortunes once earned in service to the king are now made in service to the consumer.

Franz Joseph II, 82, ruler of Liechtenstein, need curry favor only with himself. Known simply to his subjects as the Sovereign, he assumed the throne in 1938, just in time to be received by Hitler in Berlin. Asked for his impressions of the Führer, Franz Joseph replied, "He was a tiny man, no taller than my chest." He disdains modernity, including religious fads like Protestantism: In Liechtenstein all noble children must be raised Catholic. Says the Sovereign: "We cannot have someone of the aristocratic line succumbing to some queer American sect."

MILAN HORACEK—BILDERBERG

The Henkels host Germany's premier salon.

As befits a king whose ancestors include the Spanish painter Velásquez, Franz Joseph owns a fine collection of art. Nice though it is, it cannot compete with that of his Swiss neighbor **Baron Heinrich Thyssen-Bornemisza**, whose 1,400 paintings rank second in value only to those of England's **Queen Elizabeth II**. "Baron Heini," as he is called, helped arrange for paintings from Russia's Hermitage museum to be exhibited in Washington in 1986. Once during a White House dinner the Baron, who at 67 is married to a former Miss Spain, dozed off, exhausted. Miss Spain's previous Mr. was the late Lex Barker, a 1950s movie Tarzan.

What the Baron is to art, his countryman **Paul Sacher**, 82, is to music. Born the son

RUDI FREY

of a gardener, Sacher once complained he had to work his way through school "by teaching other students who were younger or dumber than me." Marriage into the family that controls the Swiss pharmaceutical giant Hoffmann-La Roche gave him access to $1.2 billion and freed him to pursue music full time. He has founded and conducted orchestras, among them the Basler Kammerorchester, and has commissioned 200 scores over the years from the likes of Béla Bartók and John Cage.

Probably no other European billionaire cares so passionately for music except for **Freddy Heineken** of the Netherlands, whose fortune derives from the brew that bears his name. Despite seven years of piano lessons he cannot read a note. But unfazed, he composes popular melodies and lives in hope that his friends Frank Sinatra and Andy Williams one day will record them. So far, no luck. Heineken, who was chained to a wall during a 1983 kidnapping attempt, has had one song recorded. Its title: *Let's Get Away From Here.*

Berlusconi and his son Pier Silvio, 19, live like rich characters in the soaps he broadcasts.

If Germany's **Konrad** and **Gabriele Henkel** harbor fears of kidnapping, they show no signs of it. Eccentrics of every political and artistic stripe grace their table, and the couple hosts Europe's highest-profile politico-literary salon. Gabriele's imaginative table settings have been called artworks in themselves. Asked by *Stern* magazine how she would decorate for a meal with the Pope, she replied: "Since he is such a protagonist of the Counter-Reformation, I wouldn't do the expected and let myself be inspired by Bernini. I would do the opposite: Asiatic, meditative . . . small plants, stones, flowers. Zen."

Amateur musician Paul Sacher was a friend of Igor Stravinsky's.

ALEX KAYSER

During a "Lion's Festivity" that Gabriele organized to celebrate Konrad's 70th anniversary as a Leo, she handed him a lion cub. The animal promptly tore open his lower lip. Smiling through the blood, he was rushed to the hospital and bandaged. When not entertaining, Konrad—at 72 an heir to a $2.9 billion fortune originally based on laundry soap—was accused of making generous, albeit undeclared, political contributions to Germany's conservative CDU-CSU party in 1984.

Fashion plates like Gabriele or **Gloria Thurn und Taxis** may bravely test the envelope of taste, but millions of ordinary German housewives buy their fashions ready-made from Quelle, Europe's largest mail-order catalogue company. It carries everything from housedresses to prefab houses. Among Quelle's best customers is **Grete Schickedanz**, the owner, who not only selects fashions for the catalogue but also wears them herself. Being in sync with customer taste has helped Schickedanz, 72, accumulate $2.2 billion. Blond, iron-willed, and stingy, this mail-order Maggie Thatcher sticks fast to a maxim of her late husband, Gustav: The penny is the soul of the billion.

Grete Schickedanz

Europe has one billionaire less prideful. He is **Vehbi Koç**, 87, whose 116 manufacturing, trade, and service companies constitute Koç Holding, Turkey's largest industrial combine and source of his $1 billion fortune. Long life has taught him how a rich man should conduct himself: He prefers asking to telling, speaks little, and takes religion seriously. He saves his energy. No lover of art, he once left a performance of *The Cherry Orchard* when he saw he was missing his bedtime. Among Koç's admirers is **Sakip Sabanci**, 55, also of Istanbul, whose Sabanci Holding makes rubber and textiles. The two meet periodically to talk Turkey, and they respect each other. Both lead unostentatious lives because, in their country, to do otherwise would be considered tasteless.

– Alan Farnham

THE ASIANS

The Japanese are getting richer and spending their money in a big way. The Chinese are tighter-lipped and more secretive than ever.

AH, TO BE Japanese and own stock. Ah, to be Japanese and own land. Ah, simply to be Japanese, and sit on one's tatami watching the yen roll in. "There is one difference this year about Japan's rich," says Sally Solo, FORTUNE's reporter in Tokyo, "They all are richer."

NIKKEI VENTURE

The chairman of Nippon Herald Films

More is rising in that over-crowded nation than just the sun. Though its standard of living still lags behind America's (see The World), the country's GNP of $2.4 trillion is more than double that of the rest of Asia. The seemingly inexorable appreciation of Japanese shares and land values has helped produce 12 billionaires, or one for every ten million people, vs. one for every five million in the U.S. (For an explanation of how those stock and land values are calculated, see box.)

Real estate has produced $1 billion for **Genshiro Kawamoto**, 56, whose idea of starting a luxury summer camp for Japanese children propelled him to Honolulu last August in search of suitable campsites. While there, he decided to Buy American in a big way, eventually picking up some 177 properties, many of them middle-class homes. The shopping spree did not endear him to the city's mayor, Frank Fasi, who complained that Japanese land speculators had "moved their floating crap game to Hawaii."

ROBIN MOYER

Genshiro Kawamoto bought 177 properties as souvenirs of his trip to Honolulu last year.

Kawamoto, meanwhile, had settled on the campsite of his dreams: a 7.5-acre estate that once belonged to industrialist Henry Kaiser. Considered the finest residential property in the islands and commanding a sensational view of Diamond Head, the house cost Kawamoto more than $40 million—a bargain in yen perhaps, but among the highest prices ever paid for any U.S. home anytime. The purchase had its ironic side: For all his interest in young campers, Kawamoto, who is unmarried and childless, regards family life as antithetical to career success. (California advisory: Kawamoto visited Lake Tahoe in July. He likes it.)

Rinji Shino, 79, the owner of bus and shipping lines (net worth: $2.2 billion), has gone Kawamoto one better by suggesting—informally, of course—that the Japanese government buy a helping of Brazil, on which to settle 20 million Japanese and ease the country's overpopulation problems. Brazil is not Shino's first love, however. He is a francophile who owns a forest outside Paris, a winery in Médoc, and a golf course whose theme is insistently French. Located near Osaka, the course has holes with names like *Comme ci comme ça* and *A la papa.* Asked if *matelots* on his 300-ton yacht, largest in Japan, wear French uniforms, he answers: "Yes; hats, too."

HE HAS $1.5 billion to spend, but **Tamesaburo Furukawa**'s favorite country, mercifully, is Japan. Next year the world's oldest billionaire will celebrate what, by Japanese reckoning, will be his 100th birthday (to Westerners, his 99th). He plans to mark his centenary with a new art museum housing his 2,000-piece collection of Japanese watercolors, samurai swords, and armor. From the outside it will be an exact replica of an architectural treasure, Kinkaku-ji (the Golden Pavilion), a three-story structure built in Kyoto in 1397. Why the replica?

"There are just two things that represent Japan," Furukawa explains. "Mount Fuji and Kinkaku-ji. I cannot build another Fuji."

This is a surprising admission coming from a man who made his fortune indulging the fantasies of others. His company, Nippon Herald Films imports foreign movies and owns the theaters they play in. Furukawa entered the motion picture business about the time that D. W. Griffith was holding a wrap party for *Intolerance.* So far back do his roots stretch that he could have exhibited the 1938 film that got young **Isao Nakauchi** started on his first billion: *Angels With Dirty Faces.* What impressed Nakauchi, now 65, was not Jimmy Cagney's tough-guy performance but something in the background that he had never seen before—drugstores that sold toiletries and candies as well as medicine. There was nothing like them in Japan, so his family started one. Last year the diversified retail chain, called The Daiei, had sales of $13.4 billion.

ROBIN MOYER

Rinji Shino's Country Club de Sennan near Osaka is designed to look much nearer to Paris.

WHILE JAPAN'S billionaires are slowly becoming more familiar to Westerners, those of Taiwan and Hong Kong remain tight-lipped and inscrutable. Their reticence sometimes works against them. For many years Taiwan's **Y. F. Chang**, 61, owner of one of the world's biggest container shipping lines, was rumored to be part of an immoral religious sect that worshiped at night in the nude. He refused to discuss the rumor, but the government finally inquired into it last year and revealed the truth: Chang did belong, but the sect was secretive, not sexual. Called Yikuantao, it is part Buddhism, part Taoism, and part beneficiary of Chang's $1.5 billion fortune.

Chang's management style is enlightened. He is said to care deeply for his employees' welfare, handing out free lunches and stowing even lowly deckhands in private cabins on board ship. While such touches may stem from his religious beliefs, they more likely spring from experience: Son of a ship's carpenter, Chang himself went to sea as a deckhand at 18.

In Hong Kong few men flaunt their wealth, and only a court can force them to say how much they own, even of a public company. Like most overseas Chinese, **Li Ka-shing** makes a virtue of the simple life. Though worth $2.5 billion, he routinely flags his own taxis to appointments. The first Chinese to take over a British trading *hong*, Hutchison Whampoa, Li has been spreading his wings to other Commonwealth countries, notably Canada, where he owns 43% of Husky Oil and real estate in Vancouver.

Michael Kadoorie, 47, is an exception to the island's code of silence, partly because his family shares a different outlook, being Iraqi-Jewish, not Chinese. Son of **Lord Lawrence Kadoorie**, 89, doyen of Hong Kong's old-money community, Michael works hard and plays harder. Though Lawrence still makes policy decisions where the family's China Light & Power is concerned, Michael oversees its Hong Kong and Shanghai hotels. He is being groomed by his father to inherit $1.5 billion, but he doesn't need any lessons in spending it. The heir schusses in Switzerland and speeds in boats and fast cars all over Europe. At home he hovers over the Hong Kong skyline in a Hughes 500D helicopter because piloting the craft relaxes him. "Demands, schedules—these become less significant," he says. "In the air one finds oneself in a world with only beauty, serenity, and the job at hand." **– A. F.**

PARCELING OUT WHO OWNS WHAT

Proving someone is worth a billion dollars isn't easy anywhere in the world, but in Japan it can be tougher than other places. FORTUNE certifies as billionaires only those individuals (or nuclear families) with that much net worth—in their own names. Assets someone may "control" but does not own outright are not included in the calculations (see box on page 104 for how the calculations are made).

It is easy enough to determine wealth that rests on stock ownership in a public company. In Japan the headaches begin with land, which is recorded under the parcel's name, not the owner's. So to find all the properties a landlord owns, one must check the records of every single parcel. To do that, FORTUNE sought the help of experts. For the past four years *Nikkei Venture*, one of Japan's most respected business monthlies, has combed the records in every prefecture to discover who owns what. Then local real estate agents were consulted, as well as Japan's National Land Agency, to determine the property's value. Regarding disclosure as inevitable, some Japanese billionaires are willing now to talk about their assets.

THE OTHERS

> Sport is the sport of billionaires throughout the world, but the Maktoums have squeezed a public relations payoff for their country out of it.

WHAT BOY wouldn't want his own boat? When Saudi Arabia went shopping for new aircraft not too long ago, **King Fahd**'s favorite son, Prince Abdul Aziz, then 12, put in a good word for 747s. So Dad bought ten for $1.6 billion, and Boeing wanted to do something nice for its young friend in return. Which is why Prince Abdul now skims the waves in a 165-foot Boeing hydrofoil.

Billionaires the world over find special pleasure in sport. But nowhere do they pursue it as avidly as in the Middle East. Prince Abdul may command the seas, but Dubai's ruling **Maktoum** family—Sheikh Rashid bin Said and his four sons—has the land-based action pretty well locked up. With $2 billion at their disposal, the Maktoums are waging a multipronged attack on golf, chess, horse and auto racing, horse jumping, field hockey, cricket, billiards, and snooker—giving their official patronage to all of them. Why? To promote Dubai (noontime summer temperature: 113° to 123° F.) to sport-happy Americans and Europeans as a great place to live, visit, and do business.

ENRICO FERORELLI—DOT

Kerry Packer

The family currently has under construction an English-style horse-racing track and an $11 million sports complex, which will include one stadium for cricket (30,000 seats) and another for field hockey (15,000 seats). Already open is an *Arabian Nights* fantasy of a golf course just a gunshot away from the Persian Gulf. There expressions like "bogey at ten o'clock" take on new meaning.

This year as last, the Maktoums were heavy hitters at July's annual auction of racehorses at Keeneland in Kentucky, where in the opening session's bidding they accounted for nearly one-third of total dollar volume. Minister of defense Sheikh Maktoum bought 12 yearlings for $6.9 million. In the second-most-expensive sale of the season, his brother, Sheikh Muhammad, paid nearly $2.5 million for an as yet unnamed son of Northern Dancer, the 1964 Kentucky Derby winner.

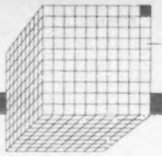
If the Maktoums have a serious rival as patrons of sport, he is **Kerry Packer**, 51, the chairman of Consolidated Press Holdings and Australia's only billionaire. Last year Packer sold his family's television network to Alan Bond, but he retains ownership of the magazines and newspapers his father, Sir Frank Packer, started. An enthusiastic polo player even at 6 feet 3 inches and 242 pounds on the hoof, Kerry has been upgrading his country place, Ellerston, 200 miles north of Sydney, with seven polo fields and facilities that cost $11 million.

Kerry is as overbearing as his physique. Father Frank was a domestic tyrant who, when Kerry arrived home for his summer holidays from the elite Geelong Grammar school having forgotten his tennis racket, decided to teach the boy the value of property. He sent him back for it by train, a journey of 1,100 miles. As a grownup, Kerry displays some of the same steel. When the chairman of a merchant bank in Sydney was describing his firm's services, Packer interjected: "So you're a bunch of whores." The man protested by reminding Packer of the high fees his bank commanded, and Packer retorted: "Oh, so you're high-priced whores." As the twig is bent . . .

– A. F.

When not hunting prey with falcons, Sheikh Muhammad al Maktoum hunts horses with his wallet at Kentucky's annual Keeneland auction.

LANE STEWART

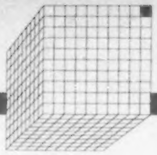


THE 1988 BILLIONAIRES, RANKED BY ASSETS

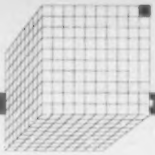
NAME Age		**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
SULTAN HASSANAL BOLKIAH, 42	Bandar Seri Begawan BRUNEI	■ **$25.0**	**Oil; gas; $20 billion in foreign investments.** With vast petroleum revenues flowing into his tiny, sparsely populated country on the island of Borneo, the Sultan is hard pressed to spend his money. But he tries. His 1,788-room palace includes air-conditioned stables for some of his 200 Argentine polo ponies. Though he often appears in a bemedaled uniform, his main claim to military fame was a $10 million donation to the Nicaraguan contras that wound up in the wrong Swiss bank account. Two wives, three sons, six daughters.
KING FAHD BIN ABDUL AZIZ AL SAUD, 68 **and family**	Riyadh SAUDI ARABIA	■ **$18.0**	**The Saud family can draw at will on the Kingdom's oil reserves.** A model of Islamic propriety since assuming the throne in 1982, Fahd once lost $500,000 while still a prince during one long night of gambling on the French Riviera.
FORREST E. MARS, 84 **FORREST E. MARS JR.,** 57 **JOHN F. MARS,** 53 **JACQUELINE MARS VOGEL,** 48	Las Vegas NEVADA McLean VIRGINIA Arlington VIRGINIA Bedminster NEW JERSEY	■ **$12.5**	**100% of Mars Inc.** The secretive Mars clan became the richest family in the U.S. thanks to the rapid rise in value of premium food companies like Mars Inc., maker of M&Ms and other candy, Uncle Ben's Rice, and Kal Kan pet food. The elder Forrest Mars went to England in 1932 after quarreling with father Frank Mars, a Chicago candymaker (Milky Way, Snickers). Forrest built a bigger company than his dad's, then eventually bought him out. Forrest Jr. and John are now in charge. Mars's assets are often underestimated because the company is as loose with information as its McLean neighbor, the CIA.
QUEEN ELIZABETH II, 62	London ENGLAND	■ **$8.7**	**Real estate, including Balmoral Castle in Scotland (50,000 acres), Sandringham House in Norfolk (20,000 acres); major U.S. properties; racehorses; jewelry; art and stamp collections; vast shareholdings.** Britain's popular Queen earns more than $30 million a year just from foreign investments—all tax-free. Three sons, one daughter.
MITZI NEWHOUSE, 86 **SAMUEL I. NEWHOUSE JR.,** 60 **DONALD E. NEWHOUSE,** 59 **and family**	New York NEW YORK	■ **$8.0**	**100% of Advance Publications and Newhouse Broadcasting.** While still in his teens, Sam Newhouse Sr., penniless son of Eastern European immigrants, helped turn around a financially troubled New Jersey newspaper. In 1922 he took over another loser, the Staten Island *Advance.* Today his widow and sons still own the *Advance,* and 24 other daily newspapers, the ninth-largest cable TV operator in the U.S., Random House publishing company, the *New Yorker, Parade,* and Condé Nast's stable of magazines (*Vogue, Glamour, Vanity Fair* among others). Don handles newspapers and broadcasting. Si oversees Random House and the magazines.
SAM MOORE WALTON, 70 **and family**	Bentonville ARKANSAS	■ **$7.4**	**39% of Wal-Mart Stores (annual sales: $16 billion).** When discount stores sprang up around big cities in the 1950s, Walton figured the formula would work in small towns too. In 1962 he opened the first Wal-Mart in Rogers, Arkansas (pop. 5,700 at the time), and has mainly stuck to backwaters. He relinquished the chief executive's title earlier this year, but still likes to pop in at stores unannounced. Four children.
ALBERT REICHMANN, 59 **PAUL REICHMANN,** 57 **RALPH REICHMANN,** 54 **and family**	Toronto ONTARIO	■ **$6.3**	**Olympia & York, largest owner of New York City commercial real estate (including $1.5 billion Battery Park City); with interests in Trizec real estate, Abitibi-Price, Gulf Canada, GW Utilities, Santa Fe Southern Pacific, Campeau Corp., and other companies.** Canada's richest family controls more than 45 million square feet of office space in the U.S. and Canada. Fled Austria to Tangier to escape Nazis. Moved to Canada in 1956. Jumped into U.S. real estate market with a splash in 1977, paying $330 million for eight Manhattan office buildings. Results were even splashier—the buildings' worth has since increased tenfold. Strict Orthodox Jews, the brothers value Talmudic studies more than a Harvard MBA. No private jets or polo ponies. Ten percent of their earnings goes to charity. Fourteen children among them.
KENNETH COLIN IRVING, 89 **and family**	Saint John NEW BRUNSWICK	■ **$6.2**	**400 companies: oil, shipbuilding, forestry, pulp and paper, virtually every English-language newspaper in the province, employing nearly 30,000 workers.** Built empire from his father's sawmill and a gas station. Three sons, nicknamed Gassy, Oily, and Greasy.

■ **NEWCOMERS**

■ AMERICANS ■ EUROPEANS ■ ASIANS ■ OTHERS



NAME Age			**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
KENNETH R. THOMSON, 65 **and family**	Toronto ONTARIO	■	**$6.0**	**73% of International Thomson Organisation; Thomson Newspapers; Hudson's Bay (more than 400 department stores, including Hudson's Bay, Simpsons, Field's); energy holdings; financial services; a distillery; real estate.** The second Lord Thomson of Fleet started as a disc jockey on a family radio station in northern Ontario. Recently went on a buying spree, swallowing up small-town newspapers across North America. Owns more papers than anyone in the U.S. Three children.
GERALD GROSVENOR, 36 **and family**	London ENGLAND	■	**$5.4**	**300 acres in London's upper-crust Belgravia and Mayfair districts; a 13,000-acre estate; 100,000 acres of Scottish forest land; Grosvenor International Holdings (real estate in Hawaii, San Francisco, Chicago, and British Columbia).** The sixth Duke of Westminster is Britain's richest man. Wealth stems from 1677 when Sir Thomas Grosvenor's 12-year-old bride brought a cabbage patch as a dowry. London grew up around the cabbages. A patron of 150 charitable organizations. Lives with wife Natalia, godmother to Princess Di's son William, and two daughters, in Eaton Hall, a modern mansion 180 miles from London. Commutes in French-made Squirrel helicopter (sticker price: $900,000).
Y. C. WANG, 71 **Y. T. WANG,** 66 **and family**	Taipei TAIWAN	■	**$4.6**	**Formosa Plastics Group, the largest conglomerate in Taiwan; 15 plants in the U.S.** Y.C. started as a laborer in a rice mill near Taipei and later bought it. In the 1950s switched to plastics, now is the world's largest producer of resins. He is chairman, brother Y.T. is president. Y.C. rises at dawn, conducts meetings over box lunches. Two sons, seven daughters.
QUEEN BEATRIX, 50	The Hague NETHERLANDS	■	**$4.4**	**A queen-size portfolio, including stock in Royal Dutch/Shell—all of it tax-exempt; jewels; real estate.** Her assets are as strong as ever, but the Queen has had to bounce back from meningitis. She was stricken last year while cruising aboard beer king Freddy Heineken's yacht. Three sons.
SID RICHARDSON BASS, 45 **EDWARD PERRY BASS,** 43 **ROBERT MUSE BASS,** 40 **LEE MARSHALL BASS,** 32	Fort Worth TEXAS	■	**$4.0**	**Oil; real estate; investments in Walt Disney Co., American Medical International, and more.** Legendary wildcatter Sid Richardson gave most of his money to nephew Perry Bass and his four sons. When Sid got an MBA from Stanford in 1968, he took control of the fortune—estimated at $50 million—and ran it into the billions by plunging in oil and real estate. Brothers now invest separately. Edward, a bachelor, has a hotel in Katmandu and a 300,000-acre ranch in Australia. Robert and Sid each have two children.
SHEIKH JABER AHMED AL SABAH, 62 **and family**	KUWAIT	■	**$4.0**	**Ruler of an oil-rich land; vast foreign investments.** Family has ruled Kuwait since 1751. Invested heavily abroad to avoid overdependence on oil—a sensible move, except that the family was clobbered in the market crash.
JAY ARTHUR PRITZKER, 66 **ROBERT ALAN PRITZKER,** 62 **and family**	Chicago ILLINOIS	■	**$3.5**	**Major ownership of the Hyatt hotel chain; 100% of Marmon Group, a collection of 60 industrial companies; investments in timber and farmland.** In the middle of the Depression, A. N. Pritzker quit corporate law for full-time dealmaking. Sons followed in his footsteps—at a dead run. Built Hyatt's worldwide chain of 144 hotels from scratch and assembled Marmon Group, a collection of mostly mundane industrial companies, through years of bargain hunting. Engineer Robert, who has five children, runs Marmon. Attorney Jay, father of four, oversees everything else. Jay quit helicopter skiing after a quadruple bypass in 1984.
JOHANNA QUANDT, 66 **and family**	Wiesbaden WEST GERMANY	■	**$3.5**	**70% of Bayerische Motorenwerke (BMW); stocks in some 100 other companies.** Second wife of the late Herbert Quandt, the conglomerator who expanded the family fortune by buying and turning around failing companies. Trustees run extensive investment portfolio for Quandt, her two children, three stepchildren, and the four children of Herbert's late half brother Harald.
GODFRIED BRENNINKMEIJER	Amsterdam NETHERLANDS	■	**$3.4**	**Major shareholder in C&A, chain of clothing shops (more than 500 in Europe, Hong Kong, Japan, and the U.S.).** Family business was founded in 1841 and follows the dictum "secrecy is good policy."
■ **GAD RAUSING,** 66 ■ **HANS RAUSING,** 62	London ENGLAND Sussex ENGLAND	■	**$3.3**	**Major interest in Tetra Pak, one of the world's largest liquid-food packagers.** Their father founded the company in 1951 in Sweden based on a package he invented that keeps liquids fresh without refrigeration. The brothers expanded into 100 countries. Both left Sweden's high taxes, but Gad returns occasionally to lecture on archaeology at the University of Lund. Hans is chairman of Tetra Pak, Gad vice chairman. Each has three children.

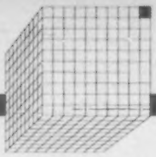


NAME Age			**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
JOHN WERNER KLUGE, 73	Charlottesville VIRGINIA	■	**$3.1**	**97.4% of Metromedia Co.; cash; real estate.** German-born Kluge (pronounced Kloo-ghee) bought his first radio station in Silver Spring, Maryland, in 1946. He built Metromedia into a broadcast giant, then in 1986 began to break it up. He sold seven TV stations to Rupert Murdoch for $2 billion. Metromedia now has cellular telephone operations, the Ponderosa restaurant chain, and 69.6% of Orion, a film production company. Kluge is looking for leveraged buyouts. Raises horses and cattle on a 10,000-acre estate.
WALTER H. ANNENBERG, 80	Wynnewood PENNSYLVANIA	■	**$3.0**	**Triangle Publications, owner of *TV Guide, Seventeen,* and the *Daily Racing Form.*** In August, Annenberg agreed to sell his media empire to fellow billionaire Rupert Murdoch for $3 billion. That's a lot of scratch for a business that began in the Roaring Twenties with father Moses's horse-racing tipsheet. If the Murdoch deal goes through on schedule, Annenberg will be retiring about the same time as old pal Ronald Reagan. One daughter.
EDGAR M. BRONFMAN SR., 59 **CHARLES R. BRONFMAN**, 57 **and family**	New York NEW YORK Montreal QUEBEC	■	**$3.0**	**38% of Seagram Co.; interest in more than 200 corporations and the Montreal Expos.** Founded in Montreal during Prohibition by the late Samuel Bronfman, Seagram has grown to be the world's largest distiller. Edgar is chairman and chief executive, and works out of New York. Brother Charles is co-chairman and runs Canadian operations from Montreal. Edgar, the father of seven, is president of the World Jewish Congress. Charles has two children.
HENRY LEA HILLMAN, 69	Pittsburgh PENNSYLVANIA	■	**$3.0**	**Controls Hillman Co.: real estate, distribution companies, and venture capital investments.** Hillman came into a $150 million steel, coal, and chemical fortune in 1959. Divesting out of the increasingly troubled coal and steel industries, he became one of the nation's most active venture capitalists. Wife Elsie is a Republican Party organizer. Two sons, two daughters.
CHARLES KOCH, 52 **DAVID KOCH**, 48	Wichita KANSAS New York NEW YORK	■	**$3.0**	**Koch Industries: oil, gas, coal, real estate, chemicals.** Charles and David won control of the family company from brothers William and Frederick in 1983 after a bitter struggle. David, a bachelor, lives in New York City. Charles lives with his wife and two children in Wichita.
ALAN, LORD SAINSBURY, 86 **SIR ROBERT SAINSBURY**, 82 **SIR JOHN SAINSBURY**, 60 **DAVID SAINSBURY**, 47	London ENGLAND	■	**$3.0**	**More than 50% of Sainsbury's, Britain's largest grocery store chain, with 387 stores.** Sainsbury's flourished by bringing American-style supermarkets to Britain in the 1950s. Alan, Lord Sainsbury and Sir Robert share the title of president. Sir John, Lord Sainsbury's son, is chief executive. Cousin David is deputy chairman and, with 22% of the stock, the richest family member. Sir John makes most lists of Britain's best managers.
A. ALFRED TAUBMAN, 64	Bloomfield Hills MICHIGAN	■	**$3.0**	**Real estate (20 regional malls, major stakes in Detroit's Riverfront apartments and an office tower on Manhattan's Fifth Avenue); 100% of Woodward & Lothrop and John Wanamaker department store chains; A&W restaurant chain; 56% of Sotheby's auction house.** Builder Taubman's contribution to Western civilization is the presence of elaborate fountains and sculpture at his mammoth shopping malls. Three children.
GARFIELD WESTON, 61 **W. GALEN WESTON**, 47	London ENGLAND Toronto ONTARIO	■	**$3.0**	**58% of George Weston Ltd.: Loblaw supermarket chain (400 stores), National Tea Co., E.B. Eddy Forest Products, 100 other subsidiaries; Associated British Foods, which has more than 100 subsidiaries.** In 1882, George Weston, an 18-year-old baker's apprentice, began selling bread door to door. Grandson Garfield runs British-based companies. His brother Galen heads North American operations. Boyishly handsome Galen owns castles in England, where he plays polo with royalty, and in Ireland, where Irish Republican Army gunmen once tried to kidnap him.
■ **KONRAD HENKEL**, 72 **and family**	Düsseldorf WEST GERMANY	■	**$2.9**	**40% of Henkel & Cie (1987 sales: $5.1 billion).** Grandfather Fritz Henkel founded Henkel Works, a chemical colossus built on the strength of Persil wash powder, a German household word long before World War I. Konrad joined the family firm in 1949 as a chemist, and ran it from 1965 to 1980. He and second wife Gabriele, an art history professor, throw frequent parties that feature an eclectic mix of avant-garde artists and politicians of all factions.
CARGILL MACMILLAN JR., 60 **WHITNEY MACMILLAN** 58	Minnetonka MINNESOTA	■	**$2.9**	**About 60% of Cargill, one of the largest privately held companies in the U.S. (estimated annual sales: $32 billion).** Whitney is chief executive of the 123-year-old grain-trading company started by his great-grandfather. Brother Cargill recently retired as senior vice president. They are obsessed with secrecy. Company headquarters, a 63-room replica of a French château, is hidden behind acres of trees. Whitney has two children, Cargill four.

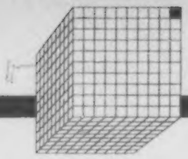
BILLIONAIRES

NAME Age		**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
KONOSUKE MATSUSHITA, 93	Osaka JAPAN	■ **$2.8**	**Major share of Matsushita Electric Industrial and other companies, whose brands include Panasonic, Technics, Quasar, and National, with sales of $27 billion in 1987.** Began as a bicycle-shop apprentice in 1905. Launched Matsushita Electric as a maker of plugs and sockets in 1918. His adopted son is chairman.
SIR JOHN MOORES, 92	Formby ENGLAND	■ **$2.8**	**Owns Littlewoods, the largest private company in Britain, operator of Littlewoods Football Pools, 175 retail stores, mail-order companies; cash.** Left school at 14. In 1923 organized a betting pool in which Britons could wager a few pennies on the outcome of football matches. Today 12 million people play the pools each week. Four children, 19 grandchildren.
YOSHIAKI TSUTSUMI, 54	Tokyo JAPAN	■ **$2.8**	**40% of Kokudo Keikaku, which owns 48% of Seibu Railway.** The son of a wealthy landowner and retailer, Yoshiaki inherited the land (including Seibu Railway) while his half brother, Seiji, got the stores. Japan's explosion of land prices propelled Yoshiaki into billionaire ranks. Seiji is worth mere millions.
FRIEDRICH KARL FLICK, 61	Munich WEST GERMANY	■ **$2.7**	**Cash from selling 10% of Daimler-Benz, 97% of Buderus Steel, 28% of W.R. Grace, and other companies; major shareholder in German insurance companies.** Born into a steelmaking family that flourished during Hitler's rearming of Germany. Cashed in shareholdings in 1986 to pay $200 million in back taxes. Twice divorced, lives with a former chambermaid in a fortress-like home. Never leaves home without bodyguards. Two daughters.
PRINCE JOHANNES THURN UND TAXIS, 62	Regensburg WEST GERMANY	■ **$2.7**	**Thurn und Taxis Bank, one of West Germany's largest private banks; real estate in West Germany, Brazil, and Canada; 100% of Produco, a supplier of rare metals to industry; family brewery.** At 23, took control of a family fortune that originated with land grants from Napoleon. Finally got serious about business after a long run as a playboy. Married for the first time at 54. His wife, Gloria, is 34 years his junior. Known as Princess TNT, she throws parties that are the stuff of legend. Three children.
■ **ERIVAN KARL HAUB,** 56	Tacoma WASHINGTON	■ **$2.6**	**Owner of Tengelmann Group, largest supermarket and drugstore chain in Germany.** Inherited Tengelmann food stores from his mother's family and expanded the company by buying German rivals. Also controls A&P, the U.S. giant, and Waldbaum's and Shopwell/Food Emporium in the New York area. Still a German citizen, he lives in Tacoma. Three sons.
H. ROSS PEROT, 58	Dallas TEXAS	■ **$2.6**	**Cash, securities, and venture capital; gas; oil; real estate.** Son of a cotton broker, Perot quit IBM in 1962 to start his own computer services company, Electronic Data Systems. In 1984 he sold EDS to General Motors for $2.5 billion and joined the board. He departed in 1986 after an increasingly public feud with GM Chairman Roger Smith over how the auto giant ought to be run. Has given more than $100 million to charity so far. Five children.
SILVIO BERLUSCONI, 52	Milan ITALY	■ **$2.5**	**Gruppo Fininvest (consolidated sales: $7 billion), holding company for TV networks and local stations; financial services; real estate; soccer team.** Founded a construction company in 1961 and built Milan's first modern suburb. Finding a loophole in Italy's broadcasting laws, he set up the first nongovernment TV network. Lives in a tenth-century former monastery with a discothèque in the basement. Four children.
ANNE COX CHAMBERS, 68 **BARBARA COX ANTHONY,** 65	Atlanta GEORGIA Honolulu HAWAII	■ **$2.5**	**97% of Cox Enterprises, which owns 19 daily newspapers, including the Atlanta *Constitution* and the Dayton *Daily News*, and eight TV stations.** Daughters of Democratic presidential nominee James M. Cox, who lost to Warren Harding in 1920. Five children between them.
LI KA-SHING, 60	HONG KONG	■ **$2.5**	**About 40% of Cheung Kong, which controls Hutchison Whampoa, a Hong Kong trading conglomerate; controlling interest in Husky Oil of Canada; Hongkong Electric; real estate in Hong Kong and Canada.** Master of the fickle Hong Kong real estate market, Li's acquisition of Hutchison Whampoa in 1979 made him the first Chinese to control a British "hong" or trading company. Probably the world's most frugal billionaire.
FREDERIK H. FENTENER VAN VLISSINGEN, 55 **and family**	Hilversum NETHERLANDS	■ **$2.5**	**Major shareholdings in Steenkolen Handels Vereniging (SHV), worldwide distributor of consumer goods; Noro Group, investment manager for individuals and institutions; Akzo NV, chemicals.** The fortune was secured by a 19th-century marriage with the van Beuningens, among Holland's leading coal traders.

BILLIONAIRES



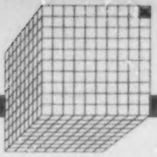
NAME Age			**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
ANTON CASPAR RUDOLPH DREESMANN, 65 **and family**	Laren NETHERLANDS	■	**$2.4**	**Major shareholder, Vendex International, family-owned holding company for chains of Vroom and Dreesmann and other European department and clothing stores.** Dreesmann, who has a doctorate in economics from Amsterdam University, bought out a number of family members five years ago. Profits have tripled since then.
■ **THOMAS SCHMIDHEINY,** 43 ■ **STEPHAN SCHMIDHEINY,** 40 ■ **ALEXANDER SCHMIDHEINY,** 36	Zurich SWITZERLAND	■	**$2.4**	**Holderbank, the world's largest cement company operating on five continents; and Anova Holding AG, in construction, electronics, packaging, real estate, banking, watches.** Fourth-generation heirs to Switzerland's most successful industrial dynasty.
WARREN EDWARD BUFFETT, 58	Omaha NEBRASKA	■	**$2.3**	**45% of Berkshire Hathaway, the vehicle for investments in Capital Cities/ABC, Geico, Washington Post, and others.** A stockbroker's son, he began investing at 11 with money earned from paper routes. Since he took over Berkshire Hathaway in 1965, he has increased book value per share from $19.46 to $2,477. Three children. Plans to give most of his money to charity.
AUGUST VON FINCK, 58 **and family**	Munich WEST GERMANY	■	**$2.2**	**Munich real estate; 9% of Münchner Rückversicherung, the world's largest reinsurance company; 6% of Allianz Insurance Corp., Germany's biggest; interests in banking, construction, and more.** His father was a German insurance pioneer who had been one of Hitler's main financial backers. He now heads Merck Fink & Co., a Munich bank.
DAVID PACKARD, 76 **and family**	Los Altos Hills CALIFORNIA	■	**$2.2**	**17% of Hewlett-Packard.** In 1939 Packard, a Stanford football player, and classmate William Hewlett (see below) scraped up $538 to start a business making measuring and control devices. He plans to turn over his stock to a foundation dedicated primarily to child health care, a cause championed by his late wife. Three daughters, one son.
■ **GRETE SCHICKEDANZ,** 72	Fürth WEST GERMANY	■	**$2.2**	**Owns Quelle, Europe's largest mail-order catalogue business.** She became an apprentice at 16 in a wholesale linen and woolen company owned by Gustav Schickedanz. In 1942 she married the boss. After the war, she started from scratch. Gustav, a Nazi Party member, was barred from business. He died in 1977. One daughter, one stepdaughter, and two stepsons.
■ **RINJI SHINO,** 79	Osaka JAPAN	▨	**$2.2**	**Owns bus, shipping, and real estate companies in Japan; a premodern Japanese art collection; a winery in Médoc; wooded land outside Paris.** Descendant of ninth-century Japanese royalty, Shino inherited land and a group of tourism companies at a hot springs near Osaka. A dedicated Francophile. Grandchildren are named after months of the year—in French.
JOSEPHINE FORD, 65 **WILLIAM CLAY FORD SR.,** 63 **and family**	Detroit MICHIGAN	■	**$2.0**	**40% of voting stock of Ford Motor (1987 sales: $72 billion).** Henry Ford II, the eldest Ford grandson, died last year at 70, leaving brother William and sister Josephine as the survivors of his generation. William is vice chairman of Ford and owner of the Detroit Lions. Josephine (known as Dodie) is married to Walter B. Ford, no relation. Four children each.
LIEM SIOE LIONG, 72	Jakarta INDONESIA	▨	**$2.0**	**24% of Bank Central Asia, Indonesia's largest private bank; 67.6% of Bogasari Flour Mills; 45% of Indocement, the largest cement company; 69% of First Pacific Holdings, a Hong Kong–based finance and trading conglomerate.** Indonesia's wealthiest businessman is a Chinese emigrant who supplied rebels during the struggle for independence from the Dutch after World War II. Has received lucrative government contracts since.
SHEIKH RASHID BIN SAID AL MAKTOUM, 78 **and family**	DUBAI	■	**$2.0**	**Ruler of an oil-rich land; extensive foreign investments.** His four sons have been running the state since 1980, when the sheikh suffered a series of strokes. Muhammad, the most forceful, controls oil and foreign investments. But Maktoum, the eldest, will succeed his father as ruler.
SULIMAN ABDUL-AZIZ AL RAJHI, 66 **and family**	Riyadh SAUDI ARABIA	■	**$2.0**	**50% of Al Rajhi Banking & Investment Corp.; real estate; agricultural enterprises.** Suliman supposedly got his start by buying gold from pilgrims in Mecca, then sending it back to Riyadh, where it commanded a better price. Shares wealth with four brothers.
■ **EDMUND VESTEY,** 56 ■ **SAMUEL, LORD VESTEY,** 47	Gloucestershire ENGLAND	■	**$2.0**	**Through Union International PLC, probably the largest privately owned multinational in the world, the Vesteys control some 250 companies in 25 countries.** At the turn of the century, William and Edmund Vestey pioneered refrigeration in transporting meat. Today their grandsons, cousins Edmund and Samuel, Lord Vestey, are the world's largest meat retailers.



NAME Age			**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
LILIANE BETTENCOURT, 65	Paris FRANCE	■	**$1.8**	**28.5% of L'Oréal, maker of hair colorings, Lancôme cosmetics, Anaïs Anaïs perfume; about 4% of Nestlé; more than 30% of Cosmair.** Her father invented the first chemical hair dye in his kitchen sink in 1907, then launched L'Oréal by cycling around Paris peddling his concoctions to hair salons. Liliane is the wealthiest person in France. Married, one child.
ESTÉE LAUDER, 80 **and family**	New York NEW YORK	■	**$1.8**	**100% of Estée Lauder Inc. (estimated annual sales: $1.4 billion).** The child of poor immigrants, she began selling her Hungarian uncle's "magic cream" potion during the Depression. Popularized skin care products for men (Aramis). Son Leonard, 55, is president and chief executive. His brother Ronald, 44, is chairman of Lauder Investments.
■ **SUMNER REDSTONE,** 64	Boston MASSACHUSETTS	■	**$1.8**	**100% of National Amusements Inc. and 83% of Viacom.** Starting with drive-in movie theaters in New York and New England, he built the family-owned company into a highly profitable theater chain with 425 screens. In 1987 he paid $2.8 billion for Viacom, one of the nation's largest media companies (Showtime, MTV cable networks). Married, two children.
■ **EDWARD BRONFMAN,** 61 ■ **PETER BRONFMAN,** 58	Toronto ONTARIO	■	**$1.7**	**Edper Enterprises: investments in energy, financial services, and consumer products companies.** The "poor" cousins of Edgar and Charles Bronfman (see above) were cut out of the Seagram part of Uncle Sam Bronfman's empire. But they've gotten along. They own a big piece of John Labatt, the Canadian brewery, which also owns the Toronto Bluejays.
■ **INGVAR KAMPRAD,** 62 **and family**	Lausanne SWITZERLAND	■	**$1.7**	**Control of IKEA, a home furnishings company, through the family charitable foundation; real estate; banking.** Started at 17 selling ballpoint pens through the mail in his native Sweden. Built a do-it-yourself furniture empire with 77 stores from Norway to Saudi Arabia. Claims his weakness is decision-making, but that the Lord gave him common sense to make up for it.
REINHARD MOHN, 67	Gütersloh WEST GERMANY	■	**$1.7**	**90% of Bertelsmann AG, the largest media conglomerate in the world, which includes Bantam Books, Doubleday.** His maternal grandfather, Carl Bertelsmann, published Protestant theological treatises until the Nazis blew up his shop in 1940. Returning home from a U.S. prisoner-of-war camp, he restarted the publishing house with a book club, an idea he had picked up in America. Lives modestly with his wife and three daughters. Chops wood at his country home for pleasure.
SULIMAN SALEH OLAYAN, 69	Riyadh SAUDI ARABIA	■	**$1.7**	**Controls Olayan Group, which manages portfolio including 7% of First Chicago Corp, 5.3% of Transamerica, 5% of Occidental, and 1% of Chase Manhattan, and some 25 companies in real estate, food importing, transportation, insurance, and construction.** Started penniless in 1937 as a dispatcher for Aramco during construction of the Trans-Arabian pipeline. Later become a subcontractor. The most unlikely of billionaires, he has no palaces, yachts, or private jets. Married to an American. Four children.
MARVIN DAVIS, 63	Beverly Hills CALIFORNIA	■	**$1.6**	**100% of Davis Oil Co.; real estate.** The romance has gone out of oil and gas for Davis, and he's yearning to get back into entertainment. Trouble is, he can't find any suitors. First CBS rebuffed him. Then Lorimar Telepictures snubbed his takeover attempt last year. He reportedly sold the Beverly Hills Hotel to the Sultan of Brunei. Lives with his wife in a mansion he bought from Kenny Rogers. Five children.
WILLIAM R. HEWLETT, 75	Portola Valley CALIFORNIA	■	**$1.6**	**12% of Hewlett-Packard.** The engineering wizard who started the company with David Packard (see above). Like Packard, he likes giving money to good causes. Donates $34 million a year to six different charities. Two daughters, three sons.
WILLIAM R. HEARST JR., 80 **RANDOLPH A. HEARST,** 72	New York NEW YORK San Francisco CALIFORNIA	■	**$1.6**	**40% interest in Hearst Corp. (14 consumer magazines, 14 newspapers, 6 TV stations, 7 radio stations, and 2 book publishers).** Their father built the nation's largest newspaper empire, starting with the San Francisco *Examiner* in 1887. Today William Jr. oversees 14 dailies as editor-in-chief of Hearst Newspapers. Brother Randolph is chairman of the board. Seven children between them, including once notorious kidnap victim Patty.
MARGARET HUNT HILL, 72 **HAROLDSON "HASSIE" HUNT III,** 71	Dallas TEXAS	■	**$1.6**	**Large interests in Hunt Petroleum Corp, real estate, investments.** Eldest child of H. L. Hunt, Margaret handles investments for brother Hassie, who reportedly suffered a nervous breakdown. Married to oilman Al Hill. Three children.

NAME Age			**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
MASATOSHI ITO, 64 **and family**	Tokyo JAPAN	▨	**$1.6**	**12.6% of Ito-Yokado Co., Japan's most profitable supermarket chain; subsidiaries include 7-Eleven Japan (3,300 stores); and Denny's Japan.** Ito says he parlayed his uncle's small dry-goods store into the world's third-largest retailer by using American methods. Three children.
■ **CHARLES A. SAMMONS,** 90	Dallas TEXAS	■	**$1.6**	**Owns Sammons Enterprises, including cable systems and insurance companies.** Started as a feed broker, founded an insurance company, and moved on to collect companies. Began buying cable TV systems long ago. Plans to leave half his money to Dallas charities. One daughter.
GIOVANNI AGNELLI, 67 **and family**	Turin ITALY	■	**$1.5**	**28.1% of automaker Fiat (1987 sales: $30 billion); insurance; department stores; publishing; concrete; telecommunications; and much more.** Grandson of the founder, Agnelli controls Italy's largest single private industrial group.
■ **Y. F. CHANG,** 61	Taipei TAIWAN	▨	**$1.5**	**Major ownership of Evergreen International Corp., the world's largest container shipping company.** Son of a ship's carpenter, Y.F. started by buying an old freighter in 1968. Very private. A member of the enigmatic Yikuantao religious sect, a patchwork of Buddhism, Taoism, and other faiths. A golfer, he recently shot two holes in one on the same day. Four children.
■ **JACK KENT COOKE,** 75	Middleburg VIRGINIA	■	**$1.5**	**Cooke Cablevision; Los Angeles *Daily News*; Washington Redskins; and New York's art deco Chrysler Building.** After selling encyclopedias door to door. Canadian-born Cooke took a $24-a-week job managing an Ontario radio station. Went on to buy radio stations in the U.S. and says he was a millionaire by 30. A $42 million divorce settlement with his first wife got him into the *Guinness Book of World Records* (since displaced by Saudi Sheikh Muhammad Al Fassi). Currently going through a messy divorce with 32-year-old wife No. 3. Three children.
■ **TAMESABURO FURUKAWA,** 98	Nagoya JAPAN	▨	**$1.5**	**Nippon Herald Films, which distributes foreign films and owns a host of movie theaters in Japan; the Herald Group of about 50 entertainment-related companies, including golf courses, ski slopes, restaurants.** After a financial panic in 1920 nearly wiped him out, Furukawa switched from jewelry to movie theaters. The world's oldest billionaire still manages his flagship company, Nippon Herald Films. Grandsons have top executive positions.
■ **EDWARD GAYLORD,** 69	Oklahoma City OKLAHOMA	■	**$1.5**	**Oklahoma Publishing; one-third of the Texas Rangers; 22,000 acres of Colorado real estate.** The ultraconservative Gaylord took over Oklahoma Publishing, owner of the capital city's daily newspaper, after his father's death in 1974. Built a country-western empire that includes the Grand Ole Opry and cable's Nashville Network. Four children.
■ **LAWRENCE, LORD KADOORIE,** 89 ■ **HORACE KADOORIE,** 87 ■ **MICHAEL KADOORIE,** 47	HONG KONG	▨	**$1.5**	**25% of China Light & Power Co.; 30% of Hongkong & Shanghai Hotels; substantial interest in Schroeder Wagg bank.** The Kadoorie family migrated to Hong Kong from Iraq in 1880 and began developing land. Lawrence is a member of the British House of Lords.
■ **JOSÉ ERMÍRIO DE MORAES,** 61 ■ **ANTÔNIO ERMÍRIO DE MORAES,** 60 ■ **MARIA HELENA DE MORAES,** 57 ■ **ERMÍRIO PEREIRA DE MORAES,** 56	São Paulo BRAZIL	■	**$1.5**	**Indústrias Votorantim, Brazil's largest industrial conglomerate.** Their father built a failing textile company into Brazil's most formidable business. The brothers each control parts of the business, but daughter Maria Helena has no role. Her father long ago barred women shareholders from management.
SHEIKH ZAYED BIN SULTAN AL NAHAYAN, 72	ABU DHABI	■	**$1.5**	**Oil; investments include U.S. Treasury bond futures and a 1,200-acre Champagne vineyard.** Zayed seized power from his brother in 1966. A Bedouin who grew up in poverty, he has given away millions. At last count, he had 22 daughters and 19 sons. Cousins dominate top government posts.
■ **ISAO NAKAUCHI,** 65	Kobe JAPAN	▨	**$1.5**	**14.9% of the Daiei, Japan's largest supermarket chain; real estate and art.** Expanded the family drugstore business into a nationwide supermarket chain. Says he was inspired by the James Cagney movie *Angels With Dirty Faces*, but not by the Cagney strut. He was fascinated with scenes showing American drugstores selling toiletries and candies along with medicine.
OSMAN AHMED OSMAN, 70	Cairo EGYPT	■	**$1.5**	**Arab Contractors Corp., builders of the Aswan High Dam; Middle East Land Reclamation Co.; founder of Suez Canal Bank and the National Development Bank of Egypt.** Most prolific builder in Egypt since the Pharaohs. Son Mahmoud is married to the late Anwar Sadat's youngest daughter.

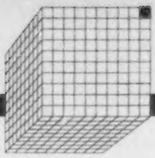
BILLIONAIRES



NAME Age			**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
LAURANCE S. ROCKEFELLER, 78 **DAVID ROCKEFELLER,** 73	New York NEW YORK	■	**$1.5**	**Joint investments include $1.1 billion in a family trust, $350 million in stocks and bonds, real estate, and venture deals.** Grandfather John D. created the Standard Oil Trust. David is a father of six. His son David Jr. is considered the likeliest heir apparent to family leadership. Laurance, the father of four, favored the 1985 cash-out of Rockefeller Center Properties. He sold his stake in Rockresorts hotels.
LAURENCE ALAN TISCH, 65 **PRESTON ROBERT TISCH,** 62	New York NEW YORK	■	**$1.5**	**25% of Loews Corp.; through Loews, 24.8% of CBS; 100% of Loews Hotels, 82% of CNA Financial, 95% of Bulova, and other investments.** When Larry graduated from college in 1946, his parents gave him $125,000, which he invested in a run-down New Jersey resort. His brother joined him two years later, and together they restored hotels, ventured into movie theaters, tobacco, and insurance companies, and built a $9-billion-a-year conglomerate. Larry is chairman of Loews and president of CBS. Bob is president of Loews. Seven children between them, including three sons in the business.
■ **TED ARISON,** 64	Miami FLORIDA	■	**$1.4**	**80% of Carnival Cruise Lines; Ensign Bank, Miami Heat, the city's first pro basketball team; real estate and financial services.** Arison emigrated from Israel in 1954 and eventually got into the cruise business. In 1974 he bought out his partner for $1 (taking on $5 million in debt) and turned Carnival Cruise Lines into a rousing success by appealing to middle-income families. Son Micky is chief executive. Daughter Shari runs the family foundation.
DONALD BREN, 56	Newport Beach CALIFORNIA	■	**$1.4**	**92% of Irvine Co., with 65,200 largely undeveloped acres in Orange County, California.** Made his mark as a developer of Mission Viejo, a planned community south of Los Angeles. Took over Irvine Co. in 1977. Now he's in court battling Joan Irvine Smith, granddaughter of the company's founder, in a dispute over purchase of her shares in 1983. Passions besides real estate: contemporary American art and George Bush's campaign. Divorced; two sons and one daughter.
WILLIAM GATES III, 32	Seattle WASHINGTON	■	**$1.4**	**40% of Microsoft computer systems.** In tenth grade he made $20,000 by developing a computer program that plotted traffic patterns in Seattle. He dropped out of Harvard to co-found Microsoft. The youngest billionaire, he's over the hill at Microsoft, where the average age is 30. An eligible bachelor who drives too fast.
HARRY B. HELMSLEY, 79	New York NEW YORK	■	**$1.4**	**Real estate, including hotels and a stake in the Empire State Building.** Among Helmsley's early jobs was collecting rent in New York's Hell's Kitchen. He assembled a real estate fiefdom through syndication. In 1972 he married Leona Roberts, a hard-driving real estate broker who had risen to president of one of his divisions, and the couple broke into the high life. In April the Helmsleys were charged with income tax evasion. They allegedly charged renovations of their Greenwich, Connecticut, estate to their hotel and real estate companies. No children.
■ **ROBERT MAXWELL,** 65	London ENGLAND	■	**$1.4**	**51% of Maxwell Communication PLC, printing business in Europe and the U.S.; the Mirror Group Newspapers; Pergamon Press, publisher of technical and scientific newspapers.** The eldest son of a poor Czechoslovakian laborer, Maxwell (original name: Jan Ludwig Hoch) left his native land in the 1930s. He acquired a struggling British printing and communications firm in 1981, restored it to health, and was on his way to building a global communications empire. In 1987 he tried to take over U.S. publisher Harcourt Brace Jovanovich. Now he's bidding for Macmillan.
ROGER MILLIKEN, 72 **GERRISH MILLIKEN,** 71	Spartanburg SOUTH CAROLINA New York NEW YORK	■	**$1.4**	**Milliken & Co.(estimated annual revenues: $2 billion), 7.3% of Mercantile Stores; 100,000 acres of forest preserves in Maine.** Seth Milliken started a Maine-based dry-goods store in 1865 and expanded into manufacturing. Grandson Roger is chief executive of the closely held textile company. His brother Gerrish retired in 1986 as Milliken's vice president.
KEITH RUPERT MURDOCH, 57	New York NEW YORK	■	**$1.4**	**46% of the News Corp., media empire with seven TV stations, 162 newspapers, and 26 magazines in Australia, Britain, Hong Kong, and the U.S.** An Oxford graduate, he took over the *Adelaide News* two years after his father died in 1952. News Corp. has an estimated breakup value of more than $7 billion—before the addition of Walter Annenberg's Triangle Publications, for which Murdoch has just agreed to pay $3 billion. Snickers about his breezy, sometimes sensational journalism have died down. Married to Anna, a novelist; four children.

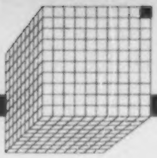
NAME Age		**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
SIR Y. K. PAO, 69	HONG KONG	**$1.4**	**15% of Standard Chartered Bank in London; extensive real estate interests.** He built one of the world's largest independent tanker fleets, then shifted to real estate and banking before the shipping business collapsed in the early 1980s. Four daughters. Two sons-in-law run the empire.
■ **LEONARD NORMAN STERN,** 50	New York NEW YORK	**$1.4**	**100% of the Hartz Group, pet supply company, real estate, and owner of the *Village Voice* and *7 Days* magazine.** Father Max started Hartz Mountain after emigrating from Germany in 1926 with 2,100 canaries in tow. Leonard took over the business in 1959 and built it into the largest pet supply company in the U.S. In the early 1970s, began buying a swamplike parcel of land in northern New Jersey. Now owns 1,500 acres of the Meadowlands, worth nearly $500,000 an acre. Divorced and remarried. Three children.
SHOJI UEHARA, 60 **and family**	Tokyo JAPAN	**$1.4**	**32% of Taisho Pharmaceutical Co.** Shoji manages Taisho, a leading nonprescription drugmaker launched by his adopted father in the 1920s. One of Japan's biggest taxpayers, he sees his wealth as "something I'm looking after for my country." Always carries $750 in emergency pocket money, to buy art books or make sudden charitable contributions. Otherwise lives a spartan life. Doesn't drink or socialize after work. One daughter.
KING HASSAN II, 59	Rabat MOROCCO	**$1.3**	**Real estate, including palaces in Morocco and properties in New York, New Jersey, and Paris.** A pauper among princes, King Hassan rules the rare Arab country not blessed with oil. The collapse in world prices for rock phosphate, a staple Moroccan export, has made matters worse for him. Still, he seems blessed with many lives, having escaped two assassination attempts by his own military. One incident left 98 dead at his birthday party. He and his wife, Lalla Latifa, have five children.
ALFRED HENRY HEINEKEN, 64	Noordwijk NETHERLANDS	**$1.3**	**About 50% of Heineken brewery.** Grandson of the founder, Freddy Heineken married the daughter of an American bourbon manufacturer and honed his marketing skills selling in New York for three years. His company enjoys a 30% market share among foreign beers sold in the U.S. With great wealth comes great risk: In 1983 he survived a 21-day kidnapping, during which he was chained to the wall of an unheated cell. Plans to retire next year.
■ **DAVID H. MURDOCK,** 65	Los Angeles CALIFORNIA	**$1.3**	**100% of Murdock Development Corp., holding company for Pacific Holding Co., owner of office buildings and commercial property; Flexi-Van Leasing; 22.7% of Castle & Cooke, a food marketer, producer, and distributor, and real estate developer.** He quit tenth grade to work at a gas station. After World War II he bought a tiny restaurant in Detroit for $1,800, sold it for $3,600, and headed west for Phoenix, where he began his career as a builder. He started with houses, graduated to duplexes, hotels, and industrial plants. An aggressive dealmaker, he's best known for his 1982 takeover of Cannon Mills. Spends weekends at his 1,200-acre ranch north of L.A. Widowed, two children.
■ **DONALD W. REYNOLDS,** 81	Las Vegas NEVADA	**$1.3**	**Donrey, a media conglomerate with estimated annual revenues of $350 million.** The Texas native was fired from his first two jobs as a newspaper ad salesman; both ceased publication after his departure. A UPI correspondent during the Spanish Civil War, the publicity-shy Reynolds accumulated 131 newspapers, mostly in small and medium-size towns. He jets around the country in a lavish 727, but turns out lights to save money. Even longtime associates call him Mr. Reynolds. Three children.
■ **DONALD J. TRUMP,** 42	New York NEW YORK	**$1.3**	**Real estate; hotels, including the Plaza in New York; casinos.** This most acquisitive real estate tycoon is best known for such namesakes as Trump Tower, Trump Plaza, and Trump Castle. After the Wharton School, he began working for his father, a developer of middle-income housing in Brooklyn and Queens. He and his Czechoslovakian wife, Ivana, a former model and Olympic skier, host star-studded parties aboard Trump's $30 million, 282-foot yacht, the *Trump Princess.*
LESLIE WEXNER, 51	Columbus OHIO	**$1.3**	**29% of the Limited: 3,200 retail clothing stores including Lane Bryant, Lerner stores, Victoria's Secret, and Henri Bendel; art; real estate in New York City, Palm Beach, and Aspen, Colorado.** A law school dropout, he borrowed $5,000 from an aunt and started a clothing store that stocked only sportswear. Today the Limited is one of the nation's largest retailers. A bachelor, Wexner says he's too busy traveling to settle down. His mother, Bella, secretary of the company, works across the hall.

BILLIONAIRES



NAME Age			**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
MADELEINE DASSAULT, 87 **SERGE DASSAULT**, 63 **CLAUDE DASSAULT**	Paris FRANCE	■	**$1.2**	**49.7% of Avions Marcel Dassault-Breguet Aviation SA; real estate, construction, film studios, publishing, finance, forestry, and a Saint-Emilion vineyard.** Madeleine is the widow of aviation pioneer Marcel Dassault and the chief beneficiary of his will. Son Serge is chairman of Avions Marcel Dassault-Breguet Aviation, which produces France's Mirage fighter. Son Claude plays no part in the business.
JOHN T. DORRANCE JR., 69 **and family**	Philadelphia PENNSYLVANIA	■	**$1.2**	**31.2% of Campbell Soup plus other investments.** In the 19th century the Dorrances bought into the Campbell family's soup and preserves business. John T. Dorrance Sr., the inventor of condensed soup, died in 1930, leaving his 11-year-old son a quarter of a $128 million estate. Drafted in 1941, John T. Jr. added a $21 salary to his $20,000-a-month allowance. He joined Campbell after the war and served as chairman for 22 years. An art collector, he lives quietly with his wife on a 40-acre estate.
RAUL GARDINI, 56 **and family**	Ravenna ITALY	■	**$1.2**	**Ferruzzi Group, Italy's No. 2 company, producers of sugar, chemicals and food; 42% of Montedison, a chemicals giant.** He took over Serafino Ferruzzi's company the old-fashioned way—he married Ferruzzi's daughter. Became chairman in 1980. With the blessing of the Italian government, he is seeking to merge Montedison with state-owned Enichem; together they would be the world's seventh-largest chemical company. Three children.
GORDON PETER GETTY, 54	San Francisco CALIFORNIA	■	**$1.2**	**Trusts, inheritance, investments.** The fourth son of billionaire J. Paul Getty, and only family member present when he died. Sold family's 40% stake in Getty Oil to Texaco in 1984 for $4 billion, which started a family feud. Lives with his socialite-publisher wife, Ann, in a mansion overlooking San Francisco Bay. Prefers to be known as a composer rather than a businessman. Four sons.
SIR JAMES GOLDSMITH, 55	London ENGLAND	■	**$1.2**	**$800 million in cash; 2.5 million acres of North American timberland.** The Eton-educated son of an English father and a French mother amassed a fortune in the food business, then turned to dealmaking. He cashed in his British chips to pay for takeover bids in the U.S. and France. In 1987 he again liquidated most of his holdings, which ranged from Grand Union in the U.S. to France's leading newspaper, *L'Express*. He recently invested $2 million in his first feature film, *Why the Whales Came*, because, he says, he liked the story. Seven children by four women. Admits to a mistress in New York and a wife in London.
■ **MARTIN HILTI**, 73	LIECHTENSTEIN	■	**$1.2**	**More than 80% of Hilti Inc., manufacturer of industrial fasteners.** One of 13 children of a butcher, Martin started a repair shop with his brother and expanded into design and manufacturing. With Europe in shambles after World War II, there was a tremendous demand for Hilti's fastening technology. Four children. Son Michael, 41, is slated to succeed his father.
SAMUEL JAYSON LEFRAK, 70	New York NEW YORK	■	**$1.2**	**Real estate, including some 90,000 apartments; oil and gas ventures in Texas and Oklahoma; an entertainment company.** His father, a French immigrant, began building apartments in Brooklyn and Queens in 1905. Now he is New York's No. 1 private landlord. Possessions include Gateway Plaza, Lefrak City, and the projected $10 billion Newport project in Jersey City, New Jersey. His interests include oceanography and archaeology—he helped finance the raising of the *Titanic*. He and his wife of 47 years, Ethel, have four children.
■ **BRUCE R. MCCAW**, 41 ■ **CRAIG O. MCCAW**, 38 ■ **JOHN E. MCCAW**, 37 ■ **KEITH W. MCCAW JR.**, 34	Kirkland WASHINGTON	■	**$1.2**	**39% of McCaw Cellular Communications, a Kirkland, Washington–based cellular telephone firm.** Sons of a Centralia, Washington, cable TV operator, the brothers are betting that car phones will take off as cable did. They sold all their cable holdings to fellow billionaire Jack Kent Cooke for $755 million last year, pouring the proceeds into a nationwide cellular phone network. After going public a year ago, the company lost $60 million in the first quarter, but it is expected to turn the corner soon.
■ **MAJA SACHER-STEHLIN**, 92 ■ **PAUL SACHER**, 82 **and family**	Frenkendorf SWITZERLAND	■	**$1.2**	**Controlling interest in Hoffmann-La Roche pharmaceutical firm.** The son of a gardener, Paul Sacher married Maja, the widow of Emanuel Hoffmann-La Roche, in the early 1930s and took control of the family fortune. Claims he is "just an artist." A conductor, he has commissioned 200 contemporary compositions from musicians ranging from Bartok to John Cage. Collects classical scores of Bach, Haydn, Beethoven, Handel, and Mozart. Maja has two children from her previous marriage. Sacher has an illegitimate son from an earlier relationship.

BILLIONAIRES



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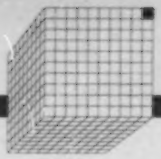
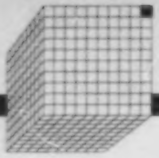
PRINCE SULTAN BIN ABDUL-AZIZ AL SAUD, 62	Riyadh SAUDI ARABIA	■	**$1.2**	**Saudi Arabia's oil riches.** As minister of defense, he controls the largest single item on the Saudi budget. Like others in the family, he regards government money as partly his own.
■ **HAROLD C. SIMMONS,** 57	Dallas TEXAS	■	**$1.2**	**87.2% of Valhi, a Dallas-based company with interests in timber, sugar, and fast-food restaurants; real estate.** Bought a single drugstore in 1961 and built it into a 100-store chain. In 1973 he sold the chain and began buying companies at bargain prices. Wants to upgrade the image of the corporate raider: "It's a positive thing." An arthritis sufferer, he has pledged $10 million for research to the University of Texas Southwestern Medical Center. Lives with wife Annette in a relatively modest five-bedroom home. Four daughters, four granddaughters.
■ **BARON HEINRICH THYSSEN-BORNEMISZA,** 67	Lugano SWITZERLAND	■	**$1.2**	**Thyssen-Bornemisza Group (sales: $2.8 billion) with 200 companies in fluid systems, information technology, electronics, packaging, metal, automotive products, and shipping; art; real estate.** Chairman of TBG, he admits to spending most of his time in pursuit of the arts. Married five times; four children. During his third divorce proceeding, the judge complained that he was taxing the Swiss economy by divorcing foreign women who thus become eligible for Swiss pensions.
AUGUST A. BUSCH JR., 89	St. Louis MISSOURI	■	**$1.1**	**13.2% of Anheuser-Busch Cos. (1987 sales: $8.3 billion), which includes brewery, Campbell Taggart bakery, aluminum can manufacturer.** His grandfather started the brewery over a century ago. The last of the great beer barons, "Gussie" became a Democrat because he was so grateful to Franklin D. Roosevelt for repealing Prohibition. At 81 he married his former secretary, his fourth wife. She died last month. Ten of his 11 children survive. Eldest son August III is the only one active in the company. Chairman and president, he samples beer shipped in from his 11 breweries every evening.
RAY HUNT, 45 **and family**	Dallas TEXAS	■	**$1.1**	**100% of Hunt Oil Co.; real estate; other investments.** Eldest of H. L. Hunt's "second family," children of H. L. and Ruth Ray. At 31, Ray took over the ailing Hunt Oil from his father and expanded its international operations. The largest of his North Yemen fields have reserves of an estimated 500 million barrels. Shares fortune with his mother and three sisters.
ALICE SHEETS MARRIOTT., 80 **JOHN WILLARD MARRIOTT JR.,** 56 **RICHARD EDWIN MARRIOTT JR.,** 49	Bethesda MARYLAND	■	**$1.1**	**23% of Marriott (400 hotels, 1,036 restaurants, plus contract food services); assets include stock in several trusts for the brothers' children.** The Marriott brothers have built the business begun by their father and mother, Alice, as a nine-stool root beer stand in Washington. Their secret: hands-on management. Chairman J. Willard travels 200,000 miles a year keeping tabs on their hotels and restaurants. Brother Dick hits the road too as vice chairman. Devout Mormons. Eight children among them.
■ **KERRY PACKER,** 51	Melbourne AUSTRALIA	■	**$1.1**	**Consolidated Press Holdings, Australia's largest magazine publisher with investments in textiles, chemicals, livestock, construction, property, financial services.** Now that the crash has taken his rival Robert Holmes à Court out of the running, Kerry Packer is Australia's only undisputed billionaire. He was born into the business empire controlled by his despotic father, Sir Frank Packer, assuming control when the elder Packer died of pneumonia in 1974. Packer was a champion swimmer, runner, boxer, and polo player. A chain-smoking insomniac, he has an insatiable appetite for business and betting. Married with two children.
■ **KICHINOSUKE SASAKI,** 56	Tokyo JAPAN	■	**$1.1**	**Thogensha, a real estate firm.** A medical doctor with a degree from Keio University, he opened a clinic for geriatric diseases and began investing in real estate on the side. Decided investing was more fun than removing cataracts and plunged in full time. Owns commercial buildings and condos in Tokyo that he rents mainly to foreigners for astronomical sums.
■ **GENEVIEVE SEYDOUX FORNIER DE CLAUSONNE** **and family**	Paris FRANCE	■	**$1.1**	**Fornier, the family holding company; investments in Schlumberger Ltd.; Chargeurs SA, a diversified transportation, textile, and communications firm; Gaumont, France's largest movie studio; and others.** The family matriarch is a daughter of the late Marcel Schlumberger, who with his brother built the No. 1 oil exploration company in the world. The Seydoux children have invested in numerous businesses. None works for Schlumberger. Son Jérôme, 54, was president for a mere 4½ months in 1975 before he departed. Now he is CEO of Chargeurs. Nicholas, 49, owns more than half the shares in Gaumont.



NAME Age			**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
KARL ALBRECHT, 68 **THEO ALBRECHT**, 66	Essen WEST GERMANY	■	$1.0	**ALDI discount stores in West Germany, Austria, Belgium, the Netherlands, and Denmark; Benner Tea Co., an Iowa-based U.S. company.** Father was a coal miner, mother ran a grocery in the Ruhr. After World War II the brothers took over the family business and built a chain of discount stores. In 1971 Theo was kidnapped and released for a ransom of $3.7 million.
PHILIP FREDERICK ANSCHUTZ, 48	Denver COLORADO	■	$1.0	**100% of Anschutz Corp. (investments in oil exploration, coal and uranium mining, real estate, railroads, and stocks.** Anschutz took out leases on a 75,000-acre Colorado ranch where he struck oil in 1978. He plans a merger of his Denver & Rio Grande Railroad with Southern Pacific. Three children.
LUCIANO BENETTON, 53 **GIULIANA BENETTON**, 51 **GILBERTO BENETTON**, 47 **CARLO BENETTON**, 45	Treviso ITALY	■	$1.0	**Owners of Benetton (1987 sales: $974 million), designers and manufacturers of casual clothes sold worldwide in franchised stores.** At 14, sister Giuliana began selling her hand-knit sweaters to help out the family. The company she and eldest brother Luciano formed in 1965 has grown into a giant operation with 5,000 stores in 70 nations, including 700 in the U.S. All four siblings have jobs in the company. Newest venture: bringing colorful sweaters to Moscow.
SEBASTIÃO FERRAZ DE CAMARGO PENTEADO, 79	São Paulo BRAZIL	■	$1.0	**Dominant shareholdings in 25 companies in construction, mining, ranching, and banking.** Orphaned son of a farmer, Camargo dropped out of school to work on a road gang. Soon he was a subcontractor with his own crew. He moved up to railroads and dams, and now he's building an extension to the subway system in São Paulo. He spends much of his time flying around Brazil in his private jet checking on projects. Three daughters.
ERNEST GALLO, 79 **JULIO GALLO**, 78 **and family**	Modesto CALIFORNIA	■	$1.0	**100% of E.&J. Gallo Winery.** When your name is synonymous with wine, you don't let just anyone use it—even if he is your brother. Ernest and Julio Gallo, whose winery produces one in every four bottles of wine sold in this country, continue their court battle to stop younger brother Joseph from using the Gallo name on his cheese products. Joseph is countersuing. Four children between them.
■ **KHALED BIN IBRAHIM** **ABDUL-AZIZ BIN IBRAHIM**	Riyadh SAUDI ARABIA	■	$1.0	**Real estate and investments.** Their sister is the favorite wife of King Fahd and mother of his adored youngest son, Abdul-Aziz, 16. Given this advantageous connection, the brothers have enriched themselves with large commissions from defense and aviation contracts.
■ **TARO IKETANI**, 71 **and family**	Tokyo JAPAN	■	$1.0	**38% of Tokyo Steel Manufacturing, the largest electric furnace-steel maker in the world.** He founded the company in 1934 and ran it until 1975, when he gave the presidential reins to his oldest son. Company share prices have almost quintupled in the past year.
■ **KANICHIRO ISHIBASHI**, 68 **and family**	Tokyo JAPAN	■	$1.0	**16% of Bridgestone Corp.** Kanichiro's father, Shojiro, started Bridgestone in 1931 and shaped it into a major tire manufacturer. Kanichiro expanded into Southeast Asia, Europe, and America. Now honorary chairman, he helped shape the successful $80-a-share bid for Firestone. Three children.
■ **PRINCE FRANZ JOSEPH II**, 82	LIECHTENSTEIN	■	$1.0	**82% of Liechtenstein Bank, the country's largest bank; real estate; agricultural operations in Austria and the U.S.; wineries; art collection.** Ruler of this 61-square-mile principality. Liberal tax laws and confidential banking practices have attracted foreign investors. Eight years ago the Liechtenstein bank was no more than a deposit box for the remaining European aristocrats. Today it's a modern international money center. Crown Prince Hans Adam has begun taking over.
AHMED JUFFALI, 59	Riyadh SAUDI ARABIA	■	$1.0	**E.A. Juffali & Brothers, the largest private business in the Arabian Peninsula, a trading company with contracting and industrial subsidiaries; 60% of the company's revenue comes from its Daimler-Benz franchise.** Orphaned as a child, Juffali got his start by winning a contract in the 1940s on a project to electrify Arabian cities, eventually bringing light to Mecca.
■ **GENSHIRO KAWAMOTO**, 56	Tokyo JAPAN	■	$1.0	**Marugen Company: investments in real estate, including prime properties in Tokyo and Honolulu.** Inherited a clothing store but by 21 had settled on a career in real estate. Took his first trip to Honolulu a year ago and kept coming back for more. At last count he had bought 177 properties there—for cash—including the $41 million Henry Kaiser mansion, which he is transforming into a luxury camp for kids. Single, he thinks marriage is a bore.

BILLIONAIRES



NAME Age			**WEALTH** billions of U.S. dollars	**SOURCES OF WEALTH** Background
■ **VEHBI KOÇ,** 87	Istanbul TURKEY	■	**$1.0**	**Koç Holding: 116 companies, including automotive, household appliances, food, banking, insurance, construction, and tourism.** This descendant of a 12th-century Muslim philosopher began with a small construction materials firm in 1926. Widower. All four children work for the company.
LEE SENG WEE, 58 **and family**	SINGAPORE	▨	**$1.0**	**25% of Oversea-Chinese Banking Corp.; rubber, pineapple, and palm oil plantations in Malaysia; real estate, publishing, and insurance in Singapore.** Lee inherited a fortune from his father, who prospered in rubber, pineapples, banking, and trading in Malaysia and Singapore. Two sons and a daughter.
SALEM AHMED BIN MAHFOUZ, 81	Mecca SAUDI ARABIA	■	**$1.0**	**52% of National Commercial Bank, Jiddah; 30% of BCCI Holdings of Luxembourg; 10% of First American Bankshares.** Founded what became largest locally owned bank in Saudi Arabia. Son Khaled is chief executive.
■ **RUDOLF AUGUST OETKER,** 72 **and family**	Bielefeld WEST GERMANY	■	**$1.0**	**Oetker Group, West Germany's largest food company, and some 70 enterprises.** Grandson of the company's founder, he was called home from the front in 1944 to salvage the empire after his stepfather, mother, and two sisters were killed in an air raid. Expanded into shipping, fishing, brewing, beverages, banks, insurance, and hotels. Lives with his third wife in Bielefeld and frequently visits his Long Island estate. Eight children.
■ **SAKIP SABANCI,** 55	Istanbul TURKEY	■	**$1.0**	**Sabanci Holding, a textile and rubber manufacturer.** His father was a peasant who saved one-quarter of his paycheck for carrying cotton bundles to buy a textile business. Tight with a Turkish lira, Sabanci once tried to bargain in Harrods. Married to his cousin; three children.
JOHN RICHARD SIMPLOT, 79	Boise IDAHO	■	**$1.0**	**100% of J.R. Simplot Co., world's largest potato processor, and producer of fertilizer, beef cattle, frozen fruits and vegetables.** Jack Simplot grew up in a one-room cabin on the banks of the Snake River. An eighth-grade dropout, he raised pigs and earned enough money to start a potato-processing business. Today the spud king is the No. 1 supplier of french fries used by McDonald's. No plans to retire. Four children.
ABDUL-AZIZ AL SULIMAN, 49	Jiddah SAUDI ARABIA	■	**$1.0**	**Jiddah's Bank Al Jazira; Saudi real estate; widely diversified investments, including Nissan's Saudi distributorship, Meridien Hotels, Caribbean cement plants, and ships.** Son of Saudi Arabia's first finance minister, Suliman was granted a cement concession by the government.
■ **KITARO WATANABE,** 54	Tokyo JAPAN	▨	**$1.0**	**Azabu Group, which includes Azabu Construction and Azabu Motors; real estate, owns substantial properties in Tokyo and Hawaii.** Got his start selling used cars, then began importing Chryslers to Japan. Most of his earnings come from real estate. Four children.

NEWCOMERS ■ AMERICANS ■ EUROPEANS ▨ ASIANS ■ OTHERS

WHAT LIES BEHIND THE NUMBERS

Estimates of net worth are based on published information or appraisals of asset values. To qualify, a prospect must have net worth—total assets after subtracting debt—of $1 billion or more. For those with holdings in publicly traded companies, the value of their shares was computed using the closing price on July 15. Currency conversions into U.S. dollars were based on July 15 exchange rates.

To determine the value of holdings in private companies, FORTUNE identified similar public companies, made reasonable adjustments for dissimilarities, and calculated a value based on the current market value of the public counterparts. In some cases, we used prices paid for similar companies in recent takeovers or buyouts. Where data is lacking for ownership of shares in private companies, we used the best information available from persons knowledgeable about the companies and individuals involved. The list includes individuals or a "nuclear" family composed of husband and wife, parent and child, siblings, or some combination of those relationships. We tried to exclude cousins and in-laws, though when brothers and their children are involved in a business, the cousins obviously have a stake in a single fortune.

We are indebted to our correspondents around the world. Among sources outside the Time Inc. network were Japan—*Nikkei Venture* magazine; Switzerland—*Bilanz* magazine; Middle East—Michael Field, a London business consultant and author of *The Merchants*; Netherlands—Jos R.M. van Hezewijk, CIDO databank, Uden; U.S.—Wealth Monitors, an investment advisory firm.

Data gathering was supervised by FORTUNE reporter Julia Lieblich, assisted by Reed Abelson, Susan Caminiti, Mark Colodny, Darienne L. Dennis, Constance Gustke, Rahul Jacob, Charles Krusekopf, Trey Loughran, and Wilton Woods.

HOW RICH WERE YESTERYEAR'S RICHEST?

A century ago, when America's entire gross national product was less than $15 billion a year, ten-figure fortunes were but dollar signs in the eyes of dreamers. If $1 billion was wealth beyond imagining for most people, a mere $1 million had meaning—especially in an era when a laboring man earned about 20 cents an hour. Recompute the wealth of some 19th-century millionaires in current dollars, however, and many would qualify for FORTUNE's list of billionaires. In 1913, right before the breakup of the Standard Oil trust, **John D. Rockefeller** was worth $900 million. Adjusted for 75 years of inflation, that translates into $10 billion. Thus, on today's billionaires list, Rockefeller would rank right after the Mars family, the richest Americans, rather than in the middle, as do his grandchildren David and Laurance.

Yesterday's numbers fall especially short in conveying the importance of these men and women to their time. Ernest and Julio Gallo may supply our wine at dinner; Forrest Mars, our Milky Ways for dessert. But 19th-century moguls industrialized America. They built and financed the nation's railroads, steel mills, and oil refineries. "They were obsessive and single-minded," says Yale historian Peter Dobkin Hall. "And they were in the right place at the right time."

UPI—BETTMANN NEWSPHOTOS

Banker Andrew Mellon

Consider the relative magnitude of the Vanderbilt fortune in 1890. By then **Cornelius Vanderbilt**'s son, William Henry, a Wall Street investment banker, had nearly doubled what the patriarch left when he died 13 years earlier. The family's $200 million amounted to nearly half the total receipts of the U.S. government in 1890, and more than the national investment in public school education that year.

Small though it was, the economy generated enough trinkets to satisfy the most acquisitive early tycoon. **J. P. Morgan** would have put Donald Trump to shame. His 302-foot yacht, *Corsair*, was 20 feet longer than *Trump Princess*. Every summer the Vanderbilts escaped their stuffy block-long abode on Manhattan's Fifth Avenue for the good salt air of Newport, Rhode Island, where parking was never a problem: Their garage housed 100 autos. Once at their airy, 110-room cottage, they could freshen up in one of 45 bathrooms.

NAME	BUSINESS	WEALTH in millions of . . .		
		yesteryear's $		today's $
JOHN D. ROCKEFELLER	Oil	**$900**	1913	**$10,000**
ANDREW CARNEGIE	Steel, railroads	**$500**	1905	**$6,030**
MARSHALL FIELD	Retailing, real estate	**$400**	1938	**$3,240**
ANDREW MELLON[1]	Finance	**$325**	1928	**$2,000**
MAYER ROTHSCHILD and SONS[1]	Finance	**$170**	1875	**$1,700**
CORNELIUS VANDERBILT	Steamships, railroads	**$105**	1877	**$1,170**
EDWARD H. HARRIMAN	Railroads	**$100**	1913	**$1,140**
HENRIETTA "HETTY" GREEN	Finance	**$100**	1916	**$1,040**
JAY GOULD	Railroads, finance	**$77**	1892	**$925**
JOHN PIERPONT MORGAN	Finance	**$68**	1913	**$802**
LELAND STANFORD	Railroads	**$21**[2]	1905	**$265**

[1] Estimates by Peter Hall of Yale. [2] Stanford's wealth does not include Stanford University, the land it sits on, or the buildings.

Tightwads were not born yesterday either. Frugal **Henrietta Howland Robinson Green**, investor and loan shark, would have made Wal-Mart's Sam Walton look flashy in his pickup truck. She wore the same tatty black dress so long that it eventually turned brown, then green. Known as the wizard of Wall Street, Hetty amassed $100 million through smart investing and usurious lending, but she ate graham crackers all day so she could avoid New York City's costly restaurants at night. A hot plate in her shabby boardinghouse sufficed to warm her dinner.

CULVER PICTURES (2)

Loan shark Hetty

The millionaires of the last century were at least as charitable as the billionaires of this. **Andrew Carnegie** spent most of his half-billion-dollar steel fortune on education and some 2,500 libraries around the world. He died worth a scant $23 million. John D. Rockefeller gave away more than $500 million to the Baptist church, education, and medical research.

Financier Morgan

If they were so generous, is it fair to call them robber barons? Matthew Josephson, who coined the term in 1934, wrote: "They were aggressive men. Sometimes they were lawless." But historians today tend to be kinder to 19th-century empire builders. Mores were different, labor laws laxer, and income taxes nonexistent until 1913. Says David Vogel, a business historian at the University of California at Berkeley: "These people did not succeed because they were unethical by the standards of the day. Of that I am certain." Like Ivan Boesky, most of the real crooks got caught.

– J.F.

THE CEOs THINK 'GEORGE' WILL WIN

A poll of the heads of FORTUNE 500 companies shows they're all for him, even though they expect him to raise taxes. How he'll raise them is what matters.

by Kate Ballen

MAYBE IT really *is* lonely at the top, or the perspective is longer. For one reason or another, the chiefs of America's largest corporations don't always see things the way the rest of their fellow citizens do. A case in point: For several months, national voter surveys awarded Michael Dukakis a distinct lead over George Bush for President—but in the latest FORTUNE 500/CNN Moneyline CEO poll, half of the corporate leaders who responded said they think Bush will be elected. Only a third believe Dukakis will prevail, while a substantial 17% are still unsure of the outcome. William Boeschenstein of Owens-Corning Fiberglas, a Bush supporter, says confidently, "There hasn't even been a contest yet. The acceptance speech was extraordinarily positive. It will generate momentum for his whole campaign."

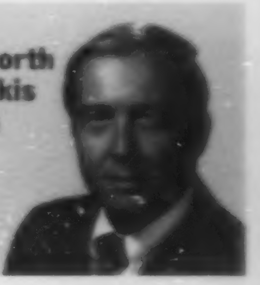
"Dukakis has done a credible job of bringing the Democrats into the moderate path."

DAVID SWANSON
Central Soya

The wish may be father to these thoughts, since 86% of the CEOs are Bush supporters. Many know him personally. That only 50% of the CEOs now think the Republican candidate will win constitutes a dramatic drop from the beginning of the year, when they gave the Republicans a 90% chance to hold on to the White House. Why the slippage? Dukakis's alliances with Jesse Jackson to his left and Senator Lloyd Bentsen to his right are among the main reasons the CEOs feel that a Republican victory now looks less certain. Observes Donald Caldwell of Atlantic Financial Federal, an S&L holding company in Bala Cynwyd, Pennsylvania: "So far everything has just gone Michael's way."

FORTUNE's poll was taken shortly before the Republican convention began and Bush picked Senator Dan Quayle of Indiana as his running mate. The opinion research firm of Clark Martire & Bartolomeo surveyed over 200 CEOs from FORTUNE Industrial 500 and Service 500 companies, and FORTUNE subsequently spoke with a number of them about Bush's choice of Quayle and other matters. Some highlights:

The CEOs believe pocketbook issues are the key to the campaign. They put the deficit and the economy at the top of the list. "The Republicans will pound away about how much better off we are than eight years ago," says William Goessel of Harnischfeger Industries, a Wisconsin equipment manufacturer. "And the Democrats will go on about the deficit, since everything else is better." Donald Lasater of Mercantile Bancorp. in St. Louis sees it differently. "The Democrats will say a lot of people aren't sharing in prosperity," he says. "People don't take pride in their country when there is so much suffering."



"Bush knows everybody worth a darn. Dukakis would have a Harvard cabinet."

W. R. TIMKEN JR.
Timken

To the CEOs the third-biggest factor will be charisma—the personality and presence of the candidates. Says Edwin Lupberger of Middle South Utilities: "The election will be a charisma battle. And neither candidate has any." James Baker of Arvin Industries

HOW THEY SEE THE CANDIDATES

Q	Whom would you prefer to win the presidential election?
A	Bush........ 86%
	Dukakis...... 7%
	Not sure..... 7%

Q	Leaving aside your own preference, whom do you expect to win?
A	Bush........ 50%
	Dukakis..... 33%
	Not sure.... 17%

Q	Who has a better chance of reducing the federal deficit?
A	Bush........ 83%
	Dukakis...... 8%
	Neither...... 5%
	Not sure..... 4%

Q	Do you believe that Bush, if elected, would raise taxes?
A	Yes......... 65%
	No.......... 31%
	Not sure..... 4%

Q	Do you believe that Dukakis, if elected, would raise taxes?
A	Yes.......... 98%
	No............ 1%
	Not sure....... 1%

thinks that by picking a young, attractive running mate, Bush will beat Dukakis on this score: "Quayle looks like Robert Redford. Women not only like to listen to him, they would like to kiss him."

Baker isn't bothered that Quayle is relatively unknown. "Dukakis is the one who needed a recognized, experienced leader on the ticket with him," he says. Adds Howard Humphrey of Franklin Life in Springfield, Illinois: "I'm happy Quayle is from the Midwest, but I'm neutral on whether he'll help Bush because I don't know much about him." Counters E. B. Leisenring Jr. of Westmoreland Coal in Philadelphia: "I don't think Bentsen is any better known. Quayle will be helpful because of his youth relative to Bentsen." Several CEOs thought "the National Guard thing" would probably "blow away," as one of them put it.

Why are nearly nine out of ten of the CEOs for Bush? John McConnell of Worthington Industries, a Columbus, Ohio, steel processor, speaks for many: "Everything is in such good shape that we want to keep it that way. The steel industry is getting healthy for the first time in years." Adds W. R. Timken Jr. of Timken, a bearing manufacturer in Canton, Ohio: "We know the programs and policies of Bush. Stability is what makes for good business." Many CEOs expect continued deregulation, fair corporate taxes, and other perks from Ronald Reagan's political partner. Arvin's Baker sums up big business's view: "The Republicans listen to business. We know Bush would help us."

"As far as the public is concerned, the deficit is a damn bore."

WILLIAM BOESCHENSTEIN
Owens-Corning Fiberglas

The CEOs have no such confidence in Dukakis. Says Middle South Utilities' Lupberger: "His obligation is to labor, minorities, and women. These people have got him, not business." Some wary CEOs fear that a Democrat would bring back the high interest rates and inflation of the Carter era. "The economy was on the rocks," says John Crean of Fleetwood Enterprises, a Riverside, California, mobile home manufacturer. "I worry about a repeat with Dukakis." Crean says the success of his homes depends on low interest rates.

Q **What do you think will be the most important issue in the campaign?**

A

Federal deficit	**29%**
The economy	**26%**
Charisma	**14%**
Leadership	**10%**
Foreign affairs	**8%**
Ethics	**7%**
Social programs	**6%**
Experience	**5%**

Total exceeds 100% because of multiple answers.

Almost all of the CEOs also think Bush would do a better job than Dukakis at reducing the deficit—their major concern. Says James Cotting of Navistar International: "We'd better wake up now or it will be too late to fix it. By increasingly becoming a debtor nation, we will lose our sovereignty." John Rollwagen of Cray Research, the Minneapolis supercomputer company, worries that "if we continue on this path, an economic crash is coming. The Japanese could refuse to finance our debt."

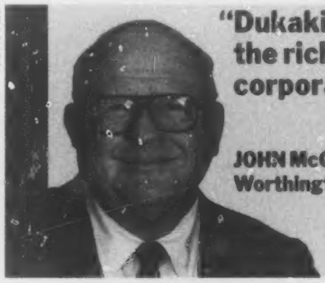
Why would a Republican President be more apt to shrink the deficit? Many CEOs echo Cotting's belief that "the whole Republican philosophy is oriented to holding down expenditures," while the Democrats come off as big spenders. "Dukakis will find it particularly difficult to resist spending," says David Swanson of Central Soya in Fort Wayne, Indiana. "Reagan has created a pent-up demand for social programs." Warns Fleetwood Enterprises' Crean: "There will be a wildfire with both a Democratic Congress and a Democratic President." Even at some companies that benefit from high government spending, the CEO opposes any expansion of it. The government buys about a third of Cray's supercomputers, but "the deficit outweighs everything," Rollwagen insists.

NOT ALL CEOs believe Bush will manage to do much about it. In fact, to 5% of them neither candidate has the edge on this count. "It will be a tough row to hoe," argues George Mead of Wisconsin's Consolidated Papers. "One leans toward defense spending, the other to entitlement programs." Humphrey of Franklin Life blames the political system, not the candidates. "The terms of Congress and the President are too short," he says. "They're too busy trying to get reelected to fix the deficit."

The CEOs prefer Bush even though most of them think he will have to do something he says he won't: raise taxes. While 98% of them are sure Dukakis would increase taxes, 65% believe Bush would too. Most CEOs—along with FORTUNE (August 15)—doubt that either candidate can avoid it. "I see no alternative if we're going to get the deficit down," says Swanson. "They've run out of accounting gimmicks," Mercantile Bancorp.'s Lasater contends.

To the CEOs the real issue has become not whether taxes will be raised, but how. CEOs naturally expect that Bush would be kinder to corporate America and to the rich than Dukakis. "Bush will stay off the backs of business with taxes," says Boeschenstein of Owens-Corning Fiberglas. Some CEOs believe Bush might try out consumption taxes instead. A big minority, however—31%—take Bush's promise seriously. Lupberger of Middle South Utilities is one of them: "I think Bush is a gentleman, and gentlemen don't go back on their word."

JAN STALLER



"Dukakis will sack the rich and corporations."

JOHN McCONNELL
Worthington Industries

Only 7% of the FORTUNE 500 CEOs polled say they expect to vote for Bush's opponent. One of them is Rollwagen. "At least Dukakis is a fresh shot," he says. "We need a change in how the economy is being managed." Rollwagen has something else to reckon with: "My wife and I agreed to vote for the same person. So far Dukakis is winning for us."

The remaining 7% aren't sure whom they'll vote for. Some are waiting for George Bush to reveal more of what he really thinks once he emerges from Ronald Reagan's shadow. Others find both candidates uninspiring. William McCord of Enserch, a Texas-based diversified energy company, belongs to both groups. "I haven't yet heard Bush's stand on taxing oil imports," he says. "But I don't see any great gain internationally, domestically, or personally coming from either party." ■

REPORTER ASSOCIATE *Gabrielle Solomon*

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Who's Really Won—and Lost—in the Reagan Years

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Machinist
$48,000
Retiree
$37,500
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$20,000
Manager
$74,500

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OCTOBER 10, 1988

FORTUNE

The price of prosperity for many boomer families is that both husband and wife are working.
COVER STORY/PAGE 38

COVER:
Joe McNally photographed (left to right) John Griffith, 65, retired IBM computer specialist, Ossining, N.Y.; Lucy Correa, 28, secretary, Festival Productions, with son Joshua, 10 months, New York City; Barbara Dalton, 35, research scientist at Smith Kline & French, King of Prussia, Pa.; Richard Witherspoon, 31, area vice president, Pepsi Cola Co., Indianapolis, Ind.; Charles Jacobson, 47, chairman of Jacobson & Associates, financial consultants, Edina, Minn.; and Ray Strickland, 47, machinist at Nucor Steel, Darlington, S.C.

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EDITOR'S DESK

JOHN ABBOTT

Burck, Prewitt, and Richman with essential tools

HOW HAS America fared under Ronald Reagan? "This is *the* central question on the eve of the presidential election," says associate editor Louis S. Richman, author of our cover story, "Are You Better Off Than in 1980?" Conventional wisdom has it, of course, that if a party delivers prosperity and peace while occupying the White House, it will have the next election sewed up. Richman's conclusions may be somewhat discomfiting to Democrats. Did America improve its lot during the Reagan Administration? "For the most part," he says, "yes."

Richman has based his story on hard data, not opinion. Before he sat down to write, he spent six weeks analyzing 16 years' worth of Census Bureau data on income and poverty levels for every income group, racial group, and household type in the U.S. The number-crunching was essential to separating fact from ideology. As Richman puts it: "If you ask a politician whether we're better off, you get polemics. If you ask an expert, you get opinion. But if you work at the numbers yourself, you get the story."

His conclusions may be surprising to readers who have lived through the dislocation and economic restructuring of the 1980s and to those who feel that upward mobility is no longer an American dream but a losing struggle. He discovered, for example, that it is now relatively cheaper to pay for a home than when Ronald Reagan first took office, and that the black middle class has made impressive gains. He also believes that baby-boomers are doing much better than they think. "Having grown up in a time of unprecedented growth," he notes, "they have unprecedented expectations."

Reporter Ed Prewitt assisted Richman by searching the country for Americans who had lived the stories the numbers told. Most stirring was the blue-collar couple who between them have been laid off and rehired 14 times in the past 14 years. Says Prewitt: "They were surprisingly unbitter. The husband, an auto worker, was a capitalist at heart. He knew America had to be competitive and didn't blame the car companies for that."

Not every segment of our society, however, demonstrated such prosperity and resilience. Charles Burck, the editor of our three-part cover package, examined the gap between America's wealthy and its poor in a separate story. Burck found that it had narrowed during the first 20 years of America's postwar period, but widened steadily during the last 20. Yes, the rich *are* getting richer—although not, as liberals have contended, at the expense of the poor. Says Burck: "The reasons reflect rising opportunities for more people." Both Burck and Richman conclude that the uneducated remain at the greatest disadvantage. "The job prospects for the uneducated are worse than ever," says Burck.

That's something for November's winner to think about, no matter who he is. The American dream has always been one of prosperity—for all.

Marshall Loeb
MANAGING EDITOR

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ARE YOU BETTER OFF THAN IN 1980?

Some Americans have lost ground, and many who are gaining think life is tougher than they expected it to be. But most are doing better, and they say so.

■ *by Louis S. Richman*

UPDATED, the memorable question Ronald Reagan put to the public in 1980 is once again at the heart of a presidential campaign, and the way voters answer it will shape the economic policy that guides America in the years to come. Should government try to redistribute well-being to specially afflicted constituencies, as it did during the Carter years? Or should it merely promote growth and referee claims to the output, the philosophy of the Reagan era?

Polls and surveys suggest that a majority of Americans *do* consider themselves better off. Indeed, the University of Michigan's Survey Research Center reports that more Americans feel good about economic conditions than at any time since the late 1960s. Statistical evidence suggests why that is so. America's "misery index"—the sum of the inflation and unemployment rates—has tumbled from 17.9% in January 1981, when Ronald Reagan became President, to 9.7% today. Counting all Americans, real per capita income has risen $1,500 since 1981 to $12,287 a year, the highest level ever. A solid and growing black middle class has emerged, and black unemployment is down—down dramatically, in fact, for black teenagers.

But after nearly a decade of extraordinary economic turbulence, some Americans are clearly worse off. Young workers who haven't finished high school are losing ground. Even the increasingly affluent middle class has worries. Financing a college education is tougher, and working couples who are raising children find that life is more difficult than they expected it to be.

So after eight years of Reagan, who's really ahead and who's behind?

REPORTER ASSOCIATE *Edward Prewitt*

Tom McEntire's salary supports the family. Marci stays at home raising Brandon, 12, and Linden, 6.

ONE-INCOME FAMILY

Any discussion starts with what's happened to wages and incomes, a subject badly battered by election-year statistical broadsides. Democrats score points with the declining average hourly wage, which has fallen 2.6% in real terms since 1981 to $8.98 an hour. On the other hand, Republicans remind voters that median family incomes are up. The Republicans have the better case.

THE HOURLY WAGE is a poor proxy for financial health. Among other things, it doesn't reflect fringe benefits such as health insurance and pensions, which have increased 42%. Nor does it include the growing proportion of compensation coming from profit sharing, bonuses, commissions, and other incentive pay.

More important, it doesn't even say enough about basic hourly wages. These represent the cash compensation of roughly four-fifths of all people employed in private industry, so if the decline were widespread it would be hard to imagine what accounts for the optimism in those polls and surveys. In fact, the brunt has been borne by smaller groups. Like any average, the wage figure is powerfully influenced by changes at the extremes—which have been significant during the Eighties.

At the top, the old labor elite, including steelworkers and auto workers, has taken a beating—one reason the real average factory wage fell 10% to $9.91 an hour. At the bottom, the influx of baby-boom workers has helped depress wages in entry-level jobs. In between, hourly wages have been rising smartly for many people. For the fast-growing financial services, insurance, and real estate sector, for example, they are up nearly 9%, to $8.73 last year (see "Don't Slow Down the Job Machine," page 52).

The measures of what families actually get tell a more complete story about well-being (see chart, page 40). Median family income, reflecting the buoyant expansion of the work force, is well above its 1981 level and has risen steadily since the recession that ended in 1982. Because families are smaller and more members are working, real per capita income is up even more. Among blacks, it has advanced a solid 15% during the Reagan presidency, a vast improvement from the 4.6% rise of the Carter years.

So why do politicians think voters will buy the idea that living standards have fallen? Partly it's because prosperity in the Eighties was purchased with the jarring—but inevitable—economic change that *has* left some Americans worse off. Roughly 960,000 blue-collar factory jobs have disappeared since 1981, and givebacks have cut

PHOTOGRAPHS BY ROB KINMONTH

To stay afloat, Jim and Carol Adams of Raleigh, North Carolina, both work. Michael, 3, puts in 10½ hours a day at a child care center.

TWO-INCOME FAMILY

gains for many of the workers who've kept their jobs. Meantime, younger workers with no more than a high school diploma have lost opportunities their predecessors had. During the Reagan years, real median earnings for those age 25 to 34 slipped some 5% to $20,378. Incomes for less experienced 20- to 24-year-olds fell 12% to $13,084. For some of these unskilled and semiskilled workers, a high-paying factory job once offered a ticket to middle-class affluence. No more.

Expensive blue-collar jobs that require little skill, always a minority of manufacturing employment, are a luxury the country can ill afford in a more competitive global economy. Still, the earnings setbacks suffered by these younger people have put the dream of owning their own homes out of reach for many. They also pointed up to anyone who needed reminding that an increasingly costly higher education is more than ever a prerequisite for financial security.

Even those who made real gains have had some trouble adjusting to the changes that swept American social and family life in the Eighties. The Reagan era bestrode one of the signal social events of the century: the maturing of the vast bulge of postwar babies and their movement into their midcareer lives as workers, parents, homeowners, and for the older ones, payers of college tuition bills. The roughly 95 million Americans born between the end of World War II and the summer of Woodstock make up a majority of voters for the first time.

Unlike older generations who knew the privations of the Great Depression and the galvanizing solidarity of World War II, the boomers had their expectations greased in the complacent prosperity of the Fifties and the indulgent Sixties. For many of these aging Aquarians who are now anxious parents and harried breadwinners, living richer does not mean living easier. Says University of Michigan economist Richard Curtin: "However well or badly they may be faring, the baby-boomers have reached that stage of their lives when economic pressures are greatest."

THE PRICE of prosperity for many boomer families is that both husband and wife are working. Traditional households where dad is the sole breadwinner now comprise only 17% of all families. There are 15.2 million such families, nearly three million fewer than in 1980. The number in which both parents work, by contrast, has grown to 27.2 million—over half of all married couples. Some 29 million mothers between 25 and 44 work for pay, nearly a third more than in 1980. The fastest rate of increase is among mothers of toddlers under age 3. More than half these mothers work, vs. fewer than a third a decade ago.

The relatively few boomers who hew to the old-fashioned family arrangement generally trade material prosperity for family values. Among the Ozzie-and-Harriet set, real median incomes since 1981 have risen only 3.1%, to $26,652. Families in which both spouses work have enjoyed a much bigger real gain—up 8.6%, to $40,422.

Do the traditionalists consider themselves worse off? Some do, of course, but not Tom and Marci McEntires, who live in suburban Philadelphia. The McEntires are raising their 12-year-old son, Brandon, and 6-year-old daughter, Lindey, on a disposable income of approximately $30,000 that Tom earns as a quality control manager for Merck, the pharmaceuticals maker. The McEntires' decision to do without a second income stems from their childhood experiences. Marci's parents divorced when she was 11, and her mother went to work as a hotel clerk to support her and her older sister. Tom, the son of a career Navy officer whose assignments uprooted the family six times before he was 15, thinks that his stay-at-home mother gave their peripatetic family a sense of stability.

The McEntires have no illusions about the trade-off they're making. Says Tom: "We'd like to buy a bigger home, drive a fancier car, and dine in restaurants with linen tablecloths like a lot of our two-career friends, but we can't afford it." Marci finds that being a traditional mother sometimes puts her on the defensive in an age when more mothers are working. "Many people tend to look at women like me as just mothers who stay home and watch soap operas," she says, "but my idea of having kids is to be home to raise them. They're young for such a short time, and I wanted to be there to share it with them."

Would many women choose to be like Marci McEntire if they could somehow scrape by on their husbands' earnings? That's what the Democrats argue. Says Lawrence Summers, Michael Dukakis's chief economic adviser: "More women are being *forced* to work to make ends meet."

The evidence is equivocal at best. The two-earner route to prosperity can be exhausting. Kids must be shepherded to day care—more often than not a worrisomely *ad hoc* situation that falls to working mom to arrange and execute. Both parents creep along traffic-snarled roads to jobs with companies that promise less security but expect more effort. Success wasn't supposed to be this hard. One hint that running tandem in the rat race may not be what most people want: Nearly three-quarters of the high school seniors in the survey on page 44 were no more than lukewarm about the prospect.

The Nunos saved and borrowed to buy an $85,000 San Diego townhouse.

NEW HOMEOWNERS

Still, if more women are working because they must, not because they choose to, you'd expect to find more working women whose husbands are in the lower income ranks, and fewer among the more affluent. But the reverse is true: Only 42% of women whose husbands' incomes fall below the household median are working—vs. 71% of those married to men who earn more than the median.

The major reason more women in their childbearing years are working seems to be simply that the workplace is far more inviting to them than in the past. The infamous "pay gap" between women's and men's earnings has closed by five percentage points, to 65%, during the Reagan years. And nearly 20% of today's working women earn more than their spouses. Women today are winning college degrees in nearly the same proportion as men—at a rate of

MIDDLE-CLASS NECESSITIES

	1981*	1987	% Change
Are they more expensive?			
House price Median	$84,965	$88,624	4.3%
Mortgage payments Monthly average	$666	$594	−10.8%
Four-year college costs[1]			
Public average annual	$3,436	$4,130	20.2%
Private average annual	$7,569	$10,050	32.8%
Appendectomy[2] Median	$636	$714	12.3%
Can people more easily afford them?			
Family income Median annual	$28,483	$30,853	8.3%
Per capita income Median annual	$10,784	$12,287	13.9%
Liquid assets to debt Year-end ratio	169%	166%	−3**
Saving rate Year-end	7.5%	3.2%	−4.3**
What's the trade-off?			
Leisure hours[3] Median weekly	19.2†	16.6	−13.5%
Working mothers Percent of women with preschool children	48.9%	56.7%	7.8**

*In 1987 dollars. **Increase in percentage points. †1980. [1]The College Board. [2]*Medical Economics* magazine. [3]Louis Harris & Associates.

over 525,000 a year. Half of all accounting students are women, as are nearly a third of all law and MBA students.

Since 1931, the number of women employed as managers and professionals has jumped about 48% and 28% respectively. Some 45% more hold skilled blue-collar production jobs. Many others balance work and family by creating jobs at home: Baby-boom mothers are giving birth to their own businesses even faster than men. With so many opportunities to do so well, it makes little sense for women to remain out of the labor force.

If many couples have trouble making peace with the strains of their dual-earner lives, most manage to achieve detente. Carol Adams, 26, is fairly typical of younger working mothers. Husband Jim, 32, an operations manager with a small textile firm in Raleigh, North Carolina, earns $28,000, enough to carry the costs of their $47,500 duplex home. Carol returned to her $17,000 job as a dental hygienist seven weeks after their son Michael was born. She and Jim worry that Michael, now 3, spends 10½ hours a day in a day care center, but they feel she must work, as Jim puts it, "to protect our lifestyle." Says he: "Families of the past were less material-minded. The way today's society is, in order to buy that microwave, that VCR, the two cars, two incomes are necessary."

WHAT OF the common belief that Americans are no longer able to afford homes of their own? It's true for some, notably those between 25 and 34 who have no more than a high school education. They are particularly apt to be left out if they live in areas where affluent newcomers are driving real estate prices skyward. But on the whole, homes have rarely been more accessible. Seven years ago the annual after-tax carrying costs of a median-price home took a budget-busting 36.3% of the median family's income; they now take only 22.5%. Home ownership among young married couples—who are, as ever, the principal first-time buyers—has been rising since 1981, says Richard Hokenson, a demographer at the Donaldson Lufkin & Jenrette investment firm.

Even in booming real estate markets, it doesn't take a big income to get into a house. Consider Adan and Rita Nuno of San Diego, both 28 and immigrants from Mexico. Adan works as an information specialist for San Diego County; Rita is a clerk with San Diego Gas & Electric. By carefully husbanding their combined gross income of barely $35,000, they saved some $350 a month toward a down payment. With prices in the area rising 10% a year, they jumped when they found an $85,000 townhouse they could buy with just $7,000 down on the city's southern edge, in Chula Vista. With just half that amount saved, they borrowed the remainder from their parents and moved in last May.

Blacks have shared unevenly in the prosperity of the Reagan era. A third remain mired in poverty (see following story). But the continuing rise and spread of the black middle class is one of the great success stories of the past 20 years. Since 1981 the number of two-earner black families increased by over 300,000, to 2.4 million, and now make up a third of all black households. Median incomes among couples working full time rose a real 10%, to almost $40,000. Says Bart Landry, a University of Maryland sociologist who last year published *The New Black Middle Class*: "This is the first secure generation of middle-class blacks. They came of age enjoying the gains won in the civil rights movement, and they have developed into a confident generation that takes a middle-class lifestyle for granted."

For many young black couples, like Sammie and Sharlene August of Houston, hard

Lloyd Jester, a machinist from Kenosha, is laid off for the fifth time since 1982. But he says he's doing far better than his father, who was "concerned about surviving."

LAID-OFF WORKER

work is starting to pay off. "We're in the best shape we've ever been," says he. Sammie, 30, grew up in the tough Fifth Ward of Houston, the youngest of nine children raised by a single mother. Sharlene, 29, a small-town minister's daughter, was one of ten children. With the help of a football scholarship, Sammie earned a degree in management and marketing from nearby Prairie View A&M University. There he met Sharlene, a business education student attending college with the help of a work-study grant.

August lost his first job as a machinist with a small steel company when Texas slipped into recession in 1982. He worked to support his wife and young son, Sammie Jr., for three years—sometimes 16-hour days, seven days a week—as a $6-an-hour security guard. In 1985 he landed a job as a youth counselor for Harris County. Now that Sammie Jr., 6, is in school, Sharlene went to work last March as an accounting clerk for the Houston water department. With secure jobs and a combined after-tax income of $33,500, the Augusts are planning to buy a house by year-end.

Divorcée Linda Polk works in the underground economy to raise Teddy.

SINGLE MOTHER

Critics deplore the Reagan Administration for indifference to affirmative action, but the record suggests that the efforts already in place have been doing what they are supposed to. Economist Andrew Brimmer points out that buoyant job growth in the Eighties helped black workers lift their relative share of total employment as more entered the labor force. The unemployment rate for black teens, unchanged in the Carter years, fell ten percentage points to 31% during the Reagan presidency. Says Brimmer: "Large companies have institutionalized affirmative action hiring and promotion practices. There are a lot of black junior officers in the corporate pipeline. Their skills and the ability to do the job will determine how many of them will become majors and lieutenant colonels." And generals.

WILL VAN OVERBEEK

Sammie August and wife Sharlene, with Sammie Jr., are planning to buy their first house this year.

BLACK FAMILY

Few groups have suffered more shattering reversals of the American dream than those Jesse Jackson refers to as the "purged and submerged"—the workers, mostly industrial, who lost their jobs during the era of restructuring. But most have resurfaced.

Of 5.1 million full-time workers who lost jobs through plant closings and employment cutbacks between 1981 and early 1986, according to the Bureau of Labor Statistics, two-thirds were reemployed. More than half of those are earning as much as or more than they did in their old jobs. Among those who could not find jobs, many retired early and others have sunk into the ranks of discouraged workers who've given up trying.

Others retain their resilience. Lloyd Jester, 46, a machinist from Kenosha, Wisconsin, has been laid off five times since 1982 from his $14-dollar-an-hour job with an Eaton Corp. division hit by Japanese competition. With 20 hours of overtime a week in good years, he grossed nearly $50,000. But as he bounced between layoff and recall during the Eighties, his wife, Jane, managed to hold on to her $14-an-hour-job in the paint department of Chrysler's Kenosha plant.

The money Jane brought home in addition to Lloyd's unemployment benefits let them keep their three-bedroom frame house. It also meant that Lloyd could preserve his 20 years of seniority with Eaton, rather than grab the first job he found. Now that the weaker dollar is helping to boost the company's orders, Jester expects to be back to work soon. Despite his seemingly endless employment setbacks, he considers himself far better off than was his father, a Missouri farmer. Says Jester: "My dad wasn't concerned about doing well. He was concerned about surviving."

Life can be also tough for single mothers and the children they raise. Single women now head nearly ten million households with almost 13 million children. Some 34% are in poverty, many because their marriages have broken up. Economists Greg Duncan and Saul Hoffman found that in the year after a divorce, the income of newly single mothers drops by an average one-third. What the numbers don't capture, however, is a lot of energy and ingenuity shown by single mothers who fend for themselves—sometimes on the margins of the underground economy.

One example: Linda Polk (her name and other details have been changed to protect her identity), 41, a thrice-divorced mother of a 2-year-old toddler named Teddy. When her marriage ended a year ago, Polk moved into a two-bedroom rental house some 40 miles outside of Chicago. She receives neither alimony nor child-support payments, though her former husband does pay for Teddy's health insurance. But she is an adept wallpaper hanger, and working for cash only, please, can clear up to $700 a week tax-free. That's more than enough to cover all the bills and pay a neighbor $110 a week to look after her son. She has no health insurance, doubts that she will be able to buy a home, and frets about sending Teddy to college. Still, she says, "I worry ten minutes a month. I have a real job. I'm chasing after a

2-year-old. I can't be there for both of us if I'm running around saying, Oy! Oy!"

The one part of the contemporary American dream that does seem in danger of evaporating for many is a college education. Worse, college is rapidly becoming a necessity: The good jobs of the future belong to the educated. Young male college graduates with between five and ten years' work experience earn median incomes of $42,346, a third higher than their peers who have only a high school education. The spread in 1981 was just 20%. While the average total annual cost of a four-year public university education has risen some 20% to $4,130 since 1981, government financial aid has grown a bare 6.5%.

Anyone with the aptitude can still land in college by virtue of sheer determination. Consider Steven Ng, 19, University of Pennsylvania, Class of '92. Arriving in the U.S. from a village near Canton, China, ten years ago and speaking no English, the Ng family eventually settled in a $280-a-month apartment in a New York City public housing project. Steven's parents found minimum wage jobs in a garment factory, where they earn a combined income of just $13,500.

After a stellar grammar school career, Ng won a $10,000 annual scholarship to Exeter Academy in New Hampshire. His family had to contribute an additional $1,000 annually to his support. Now Penn is helping him cover the annual $19,500 tuition, books, and room and board with a financial package made up of scholarship aid, loans, and 20 hours of work each week. Steven and his family will have to come up with another $2,500 a year to cover the balance. Despite their meager resources, the Ngs are confident they'll succeed, because they have already managed this upward mobility miracle three times. One of Steven's three older brothers is a university graduate; the others are in college.

SO FAR, most Americans can still get their kids into college without heroics. The number of students enrolling today, some 11 million in all, remains about the same as it was in 1981, although the number of graduating high school seniors has declined 16%. Amazingly, few parents save up for future tuition bills. Most pay out of current income, more as if they were buying a toaster than an investment in their children that costs more than a new car. But with costs now rising at a rate far surpassing any foreseeable increase in incomes, a crunch is not far down the road.

Still, most of the difficulties that make Americans wonder about their well-being should be transitory. Says Michigan's Curtin: "Many of the people who feel pinched today do so because they are at that point in their lives when if their incomes happen to match their needs, it's a matter of pure luck." As the boomers age, their incomes will grow ahead of those needs. One reason is that the restructuring of the 1980s, which caused pain for some Americans, has put the nation in much better shape to compete in the world—and continue prospering—in the 1990s. As the U.S. approaches that decade, the statistics show that many more Americans have won than have lost from the Reagan years. ■

HIGH SCHOOL SENIORS: MOSTLY UPBEAT

From the University of Michigan's survey of approximately 3,000 students in 125 U.S. schools

What they hope to get . . . and what they will need to get it

When you are older, do you expect to own more or fewer possessions than your parents do now?

	1980	1987
Fewer	12.0%	7.4%
About as much	39.6%	32.2%
More	35.4%	39.8%
Much more	12.9%	20.6%

Doing well in school is important for getting a good job.

	1980	1987
Not important	6.8%	6.3%
Important	85.4%	86.7%
Neither	7.9%	7.1%

How they view the family

Imagine you are married and have preschool children. How would you feel about the husband working full time and the wife not working?

	1980	1987
Not acceptable	8.9%	11.6%
Somewhat acceptable	15.4%	20.7%
Acceptable	36.9%	38.0%
Desirable	38.8%	29.6%

How would you feel about both parents working full time?

	1980	1987
Not acceptable	63.4%	52.0%
Somewhat acceptable	18.5%	24.4%
Acceptable	12.4%	17.3%
Desirable	5.7%	6.3%

A man and a woman who decide to have and raise a child out of wedlock are . . .

	1980	1987
Experimenting with a worthwhile alternative lifestyle	6.9%	9.1%
Doing their own thing and not affecting anyone else	26.6%	37.7%
Living in a way that could be destructive to society	24.9%	17.5%
Violating a basic principle of morality	28.7%	23.5%
None of the above	12.9%	12.1%

How they view the nation

How good or bad a job is being done for the country as a whole by the President and his Administration?

	1980	1987
Poor	38.7%	23.7%
Fair	34.3%	30.6%
Good	19.2%	35.2%
No opinion	7.8%	10.4%

How good or bad a job is being done for the country as a whole by large corporations?

	1980	1987
Poor	21.9%	7.1%
Fair	35.9%	27.4%
Good	29.1%	46.9%
No opinion	13.1%	18.7%

Looking ahead to the next five years, do you think that things in this country will get better or worse?

	1980	1987
Better	21.2%	31.2%
Worse	62.0%	34.3%
About the same	16.8%	34.5%

How much do you worry about the economy's problems?

	1980	1987
Rarely	25.1%	44.4%
Sometimes	41.8%	39.0%
Often	33.1%	16.6%

Source: Survey Research Center, Institute for Social Research, University of Michigan

IBM AND DEC TAKE ON THE LITTLE GUYS

Upstarts Sun and Apollo own the hot market for high-performance computer workstations powered by the new RISC technology, but they can hear the footsteps. ■ *by Stuart Gannes*

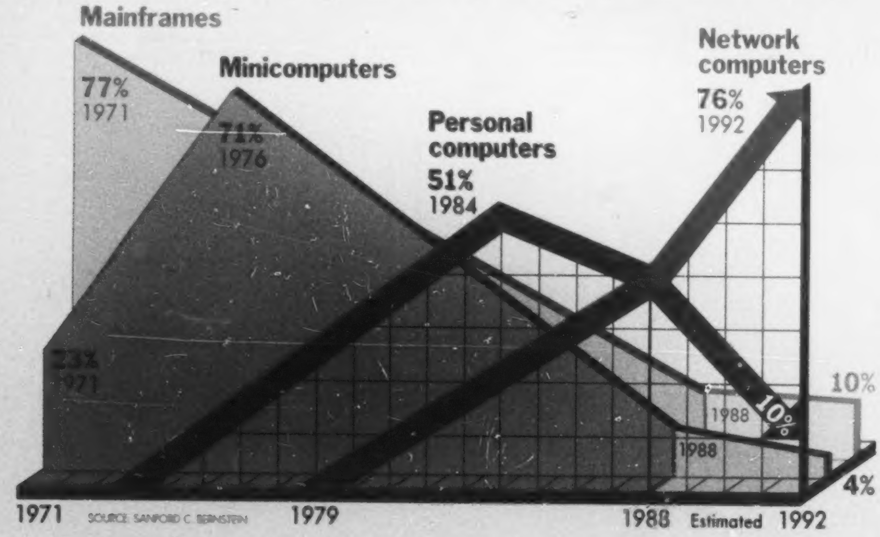
IT WAS ONE OF THOSE classic cases where the little guys forged ahead while the big boys weren't paying attention. Upstart companies came from nowhere to carve out big chunks of the market for workstations, the fastest-growing segment of the computer industry. When the big boys finally noticed, they plunged in confidently—and were promptly snubbed. Now wiser and better equipped, the brand-name computer makers are preparing to crash the party again, and this time they hope they'll get a better reception. They're likely to find themselves in a heck of a fight.

In 1989 computer giants in the U.S., Japan, and Europe will launch major offensives to grab control of the $4.7 billion market for high-performance workstations, the speedy cousins of personal computers. Says Salomon Brothers computer analyst Marc G. Schulman: "Every management in the computer industry has reached the same set of conclusions about how to grow. It's going to get rather bloody out there."

Workstations are typically used in networks by groups of scientists, engineers, and, increasingly, business and finance professionals. With prices that start at $5,000 and range as high as $100,000, they are gaining in popularity because they bring a variety of new applications to the desktop. Chief among them are enhanced graphic displays that make programs far easier to use and sophisticated communication capabilities that let people at different machines share data and software. Industry experts predict that the market for such workstations will reach $20 billion annually in just five years.

FOUR WAVES OF GROWTH IN COMPUTERS

The chart shows shares of industry growth. Network computers will account for 76% by 1992.



SOURCE: SANFORD C. BERNSTEIN

Each technological advance has generated a new surge of computer sales. When PCs cooled, workstations made network computing the industry's fastest-growing market.

Up to now the workstation sector has been dominated by innovative young companies, particularly Sun Microsystems and Apollo Computer, which jointly control more than 50% of the market. But in the next few months IBM and Digital Equipment Corp., the No. 1 and No. 2 computer makers, will go on the attack. Both companies are set to unveil workstations that incorporate lightning-fast microprocessors based on a revolutionary concept called RISC—for reduced instruction set computing.

COMPARED WITH conventional microprocessors, RISC chips have drastically simplified designs that can run programs at double or triple the speed of older machines (see box). IBM plans to use a RISC chip developed by its own engineers. DEC's workstations will be built with microprocessors designed by privately held MIPS Computer Systems of Sunnyvale, California.

The two industry giants are in a fighting mood. "We intend to be the leader in workstations. We're tired of being annoyed by Sun," says William Strecker, DEC's vice president for product strategy. Adds Arthur G. Goldberg, director of workstation systems at IBM: "It's too early to call winners and losers in this game. As this market matures, it's going to favor those computer makers with staying power."

IBM and DEC are not the only companies planning to use RISC as a weapon. Virtually all major computer makers (and most microprocessor manufacturers) are either selling RISC designs or racing to bring them to market. Sun, Apollo, and Hewlett-Packard already sell workstations based on RISC. Other large computer makers, including Unisys and Data General in the

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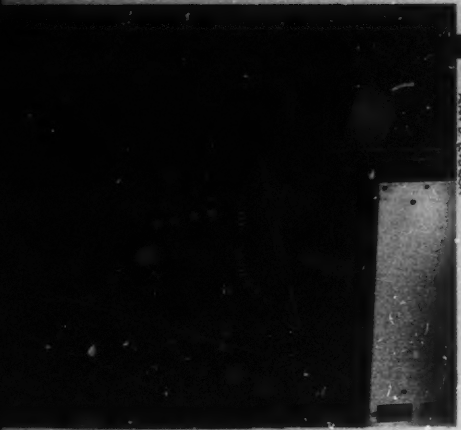
REPORTER ASSOCIATE *Mark Alpert*



ALAN D. LEVENSON

A technician at Sun Microsystems inserts a board with the RISC chips that have made this Sun-4 workstation the one to beat.

U.S. and Nixdorf in Europe, plan to follow suit. So will the Japanese electronics conglomerate Matsushita, through its U.S. subsidiary, Solbourne Computer. Says Bernard Lacroute, executive vice president of Sun: "Three years ago most of these big companies viewed RISC as a fantasy. Now they recognize that it is a necessity. You cannot compete without it."

War is in the air because the spoils are so huge. Desktop workstations will be the driving force of the fourth great wave of growth in the computer business, which industry analysts are calling the era of network computing. The first wave came in the 1960s with the flowering of mainframes, which the development of the transistor made possible. Then in the early 1970s the advent of integrated circuitboards touched off the second wave: the minicomputer era. The invention of the microprocessor, the computer on a chip, triggered the personal computer boom. But the growth rate of PCs peaked in the mid-1980s. Now newer generations of advanced microprocessors—particularly those that employ RISC technology—are propelling workstation-based network computing to the forefront of the industry.

Mark Stahlman, a computer analyst at the Wall Street investment firm of Sanford C. Bernstein, estimates that the network computing business—which includes sales of workstations and other equipment designed to operate on large networks—is growing at an annual rate of 40% to 45%, vs. 12% to 13% for the industry as a whole. By 1992, he predicts that sales in this segment will reach $90 billion, or close to 30% of all computer revenues and 76% of all growth in the industry (see chart). "Demand for this new style of computing will define the basic growth equation for the whole industry," Stahlman argues.

The latest generation of PCs, including new models made by Apple Computer and IBM, offer some of the attributes of workstations, but there are important functional differences between the two types of machines. PCs are personal productivity tools that let people perform tasks like word processing and financial analysis. Workstations are designed to be linked to one another and to large computer networks that give them access to company files and databases.

IBM and DEC want a big chunk of the new business. Despite their huge size, both companies dominate computer markets where growth is slowing. Their efforts to better manage their existing businesses have won faint praise on Wall Street. Over the past year IBM has tackled a massive and traumatic restructuring, which did little to restore investors' confidence. DEC's stock, which traded as high as $199.50 just a year ago, is languishing in the 90s because of lower than expected earnings and the general uncertainty about the minicomputer market. No wonder leaders at both companies are saying they will do whatever it takes to win in workstations.

Both companies view workstation networks as fuel for sales of their larger computers. As a result, says Salomon Brothers' Schulman, "you're going to see them fight hard for market share, even if it means squeezing profit margins to the bone. You've got the two biggest companies in the industry staking out a major position in a highly competitive market. They could cross-subsidize their workstation efforts with profits from the markets they dominate."

THE TWO COMPANIES admit they are behind. In IBM's case, booming sales of RISC-based workstations by companies like Sun and Apollo are a source of embarrassment. The reason: Scientists at IBM's Thomas J. Watson Research Center invented RISC technology back in the mid-1970s. What's more, Big Blue produced one of the earliest RISC workstations, the IBM RT PC, in 1986. But the machine was a flop. Its microprocessor—a modified version of a chip designed for IBM's electronic typewriters—was woefully underpowered. According to International Data Corp., a market research firm in Framingham, Massachusetts, IBM won just 3.9% of the worldwide market for technical workstations in 1987, vs. Sun's 29% and Apollo's 21%. To move inventory, IBM sharply increased sales incentives for current RT models, whose prices start at about $15,000.

continued

Eight RISC chips working in tandem generate sophisticated graphics in this experimental workstation built by IBM at its Hawthorne, New York, research center.

WHY IT'S A RISC WORTH TAKING

Sometimes less is more. That's the basic principle behind RISC, or reduced instruction set computing, the technology that is paving the way for a new generation of super-quick computers. RISC technology streamlines the microprocessor chip, the main engine inside technical workstations and personal computers, into a lean computing machine that can perform complex tasks two to three times faster than the overloaded microprocessors of the past.

The traditional microprocessor chip contains a complex web of instructions that translate programming language into electronic signals. Over the years, as computers gained power, more and more of these instructions were packed onto each microprocessor. But scientists have known for many years that a computer typically spends most of its time performing only 20% of its instructions—basic operations such as addition and subtraction. The designers of the RISC chip stripped away the least-used instructions and created a microprocessor that was simpler and faster.

Actual size of a RISC microprocessor

For example, to multiply three times five, a traditional microprocessor would have a set of special instructions built into it to do the multiplication in a single step. A RISC microprocessor, on the other hand, might not have the ability to multiply. It would simply add five three times. Although the calculation requires more steps, the answer comes out more quickly because each step is performed almost instantaneously.

Engineers can wax poetic about RISC. Some compare old-style microprocessors with their myriad instructions to the thousands of characters in the Chinese language. They compare the RISC microprocessor to the English language, which employs only 26 letters but accomplishes the same task of communication.

The idea behind RISC is not new. But the technology didn't catch fire until recently, partly because the RISC machines were incompatible with the older proprietary software used by most computer manufacturers. Now many computer companies are switching to Unix, an operating system that can be easily adapted for different types of computers and promises to allow the same software applications to be used across a wide range of machines. The bonus is that RISC machines also run on Unix. That makes RISC more practical and has encouraged many companies to revamp their software to take advantage of the phenomenal performance of a RISC machine.

Computer manufacturers aren't the only ones trying to jump on the RISC bandwagon. Semiconductor companies closed out of the microprocessor business by Intel and Motorola see RISC as a way to muscle back in. Texas Instruments, LSI Logic, Fujitsu Microelectronics, Cypress Semiconductor, and Bipolar Integrated Technologies have all obtained licenses to manufacture the RISC microprocessor designed by workstation maker Sun Microsystems. The chip is at the heart of the Sun-4 family of machines that is Sun's latest line of workstations.

Advanced Micro Devices has built its own RISC microprocessor, which it plans to market as a controller for electronic equipment. John East, a senior vice president at AMD, says the chips can go into laser printers, graphics boards, and the communications equipment that directs the flow of data in a computer network. East believes more of AMD's RISC microprocessors will wind up in these uses than in workstations. He estimates that the RISC microprocessor business will reach $5.3 billion a year by 1993, with nearly all of it up for grabs. "The RISC chip is just better, like a jet engine is better than a prop engine," East says. "I've been in this business for 20 years and I've never been more excited." **– Mark Alpert**

IBM insists it will not stumble again. William Lowe, president of the entry systems division, which sells some $7 billion worth of personal computers and workstations annually, is mounting a massive effort to improve the RT. "We're spending as much on RISC technology as we are on our PC business, which is obviously quite important for us. Our objective is to be the leader in the workstation market," says Lowe. He promises that next year's RISC-based models will be twice as powerful as the current generation of machines.

DEC IS ALSO running to make up lost ground, although for quite different reasons. The minicomputer maker was blind-sided by the workstation boom. For most of the 1980s, DEC focused on different opportunities. Under the leadership of founder and president Kenneth Olsen, the company sought to expand sales of its highly profitable VAX family of computers. Working from its strong base of engineering and scientific customers, DEC embarked on an ambitious and successful drive to win more commercial accounts. Explains DEC's Strecker: "We did a rather great job, quite honestly. We went from a small company to one that gives IBM some fits. The strategy required to take on IBM was not one of making hot boxes for the desktop."

But even as DEC encroached on IBM's turf, many of its loyal technical customers began buying workstations from Sun and Apollo. At first this turn of events seemed perplexing—but hardly alarming. Executives at DEC headquarters were certain they could build a better workstation than their upstart competitors. And while DEC began experimenting with RISC microprocessor designs as early as 1985, many engineers in the company were not impressed by the new technology. "Even today there is no consensus in our company about what the advantage of RISC is," says Strecker. Not surprisingly, DEC's first line of workstations, called VAXstations, featured the same microprocessor as the VAX.

The VAXstation did not bomb as badly as the IBM RT PC, but it was not the success that DEC expected. DEC had designed it to work best with its proprietary VMS operating system—the software that controls the functions of a computer—but the price wasn't competitive with machines that ran Unix, the operating system companies are beginning to favor. In 1986, as Sun and Apollo continued to make inroads with DEC accounts, Olsen reorganized the company's workstation sales efforts. Explains Joseph DiNucci, the executive put in charge of workstation sales: "We knew we were losing big accounts left and right. Our goal was to let the median sales guy win the median sales battle without calling in the cavalry. But with some customers we weren't even getting on the playing field."

A turning point for DEC came in April 1987 when executives at National Semiconductor, a longtime DEC customer, told DiNucci they were placing a large order with Sun. "It was like taking a full roundhouse punch," he recalls. "When you do your best and the customer looks you square in the eye and says, 'Not good enough,' it really hurts." Within a month DEC's top management decided the crisis was real and drastic action was required. To stimulate sales the company slashed the VAXstation's price by more than 50%.

ANDY FREEBERG

IBM's William Lowe promises to finally get it right with an improved workstation in 1989.

DEC also decided to build a RISC-based workstation as quickly as possible. At first there was no question that the job would be done by DEC engineers. But in a matter of months the company became convinced that it wasn't moving fast enough. "Six months into an 18-month project, we were still 18 months away," DiNucci explains. "As the project unfolded it became apparent the best use of resources was to buy the microprocessor technology rather than reinvent it on our own."

In a daring challenge to the company's inbred corporate culture, DEC decided to shelve its own RISC project and use the microprocessor from MIPS Computer Systems in a workstation code-named MAX. In this case, explains DiNucci, "the most important variable for one of our product development efforts became how fast we could get it to market. We had a product introduction date and we managed backwards from it."

Equally significant was the fact that DEC agreed to build a computer system based on another company's technology. Says Goldman Sachs computer analyst John Levinson: "The fact that DEC is willing to go outside for important technology marks a major change. They are finally getting rid of their 'not invented here' attitude."

DEC's decision bears a striking resemblance to the sequence of events in 1980-81 that led IBM to build its PC with a microprocessor designed by Intel. In both cases a market crisis was the catalyst for change. According to MIPS Chairman Robert Miller, a former IBMer who witnessed the development of both IBM's PC and DEC's MAX, executives at DEC refer to the new workstation push as Brave New World. "These guys are emotionally torn up about this," says Miller. "They're wrestling with a cultural transition that's enormous. These technical guys are having to face up to the fact that in an important area of the industry, they couldn't do the best job. It's like coming home and having your wife say, 'I really love you, but you're not the world's best lover.' "

Miller believes that the brave new world for DEC resembles the model pioneered by IBM, whose success with PCs was based on its willingness to acquire technology from outside sources. "Both companies realized they had to take a new approach," says Miller. "If you go back and look at IBM's efforts to build a PC in the late 1970s, it was one disaster after another. They screwed up time after time until they recognized that they had to make a 90-degree turn. In large companies you can't change until you convince people you have a crisis. I'm convinced that DEC is crossing that bridge."

Both DEC and IBM are hoping RISC will give them the firepower to neutralize the performance advantage the competition now holds. Once this happens, say both companies, they will be in a better position to unleash their traditional strengths—their huge sales forces and service organizations—in the workstation wars.

RICHARD HOWARD

William Strecker's DEC must make the cultural adjustment to RISC technology.

As the big boys come crashing in, smaller companies like Sun and Apollo hope they can outrun the behemoths. "Performance is absolutely fundamental in this business, and time to market is everything," says Sun's Lacroute. "Competing against IBM and DEC is both a threat and an opportunity. They have big sales forces, but by lending credibility to our strategy, they are opening new doors to for us."

SOME ARGUE that improved technology will not automatically give the giants the advantage. "This is a technology we've been born and raised with," says Michael Gallup, director of product marketing for Apollo. "Success in this technology is not something you can get just by pulling out a checkbook."

Analyst Stahlman believes that sheer size will be less of a factor in the workstation wars than IBM and DEC might hope. "The burden of proof is on the bigger companies, because they came into the race handicapped," he says. Stahlman points out that each of the technological waves that swept through the computer industry propelled new winners to the forefront. The one exception has been IBM's remarkable success with the PC. Now that the battleground is shifting to workstations, DEC and IBM are hoping that they have enough clout to make history's exception repeat itself. ■

MEDICAL CARE'S NEXT REVOLUTION

Believe it or not, doctors often don't know which treatments pay off best for patients. A vanguard of physicians hope to conquer this ignorance.

■ *by Edmund Faltermayer*

CONSIDER what doctors, to say nothing of patients, don't know about the value of just one procedure. Each year about 80,000 Americans get a carotid endarterectomy, a kind of Roto-Rooter job on clogged neck arteries. Typically costing $9,000, counting the bill for a hospital stay, the operation is designed to prevent strokes. Another triumph of modern medicine? Or an overly risky, overdone alternative to cheaper drug therapy? Incredibly, no one knows for sure, and no one is tracking the patients on a systematic basis to find out.

The same holds true for scores of other medical ministrations. Food companies know the impact of a redesigned ketchup bottle on sales. But the virtuosos performing hysterectomies, installing pacemakers, and bypassing diseased coronary arteries have only patchy information about the real payoffs. "Half of what the medical profession does is of unverified effectiveness," asserts Dr. Paul M. Ellwood Jr. of Minneapolis, in a phalanx of physicians who want to cut down on the guesswork.

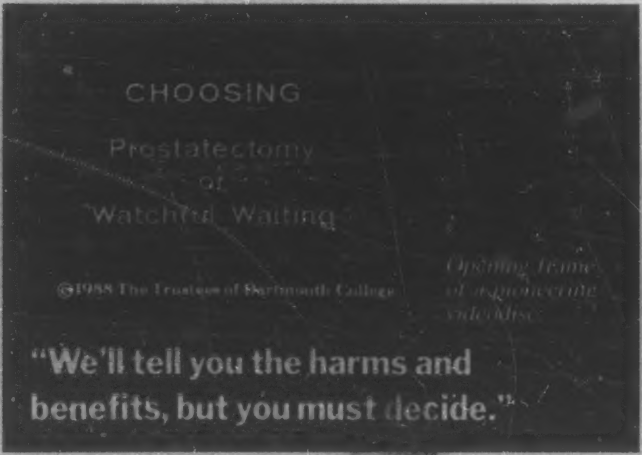
Half of something as stupendous as the U.S. health bill—now 11.4% of GNP, or nearly twice what the military gets—implies a huge ore body that could be mined for savings. That should be of special interest to business, which picks up the biggest chunk of medical expenditures. Health insurance premiums have jumped anew in 1988, following several years in which companies successfully slowed the rise.

Abetting the persistent upward trend is what one consultant calls "MD-ification." Corporations, for all their new cost-containment mechanisms, don't know enough to go eyeball to eyeball when professionals are determined to do an operation. Yet business executives would be shocked if they knew of the doctors' own uncertainties. The problem is rare in the cut-and-dried matter of treating acute afflictions—prescribing penicillin for pneumonia or setting a broken bone. But doctors increasingly toil in the murky area of chronic ailments: arthritis, angina chest pain, impaired vision. Here the question of which treatment is best can be settled only with data.

The need for much more of it has never been so urgent. The new law liberalizing Medicare payments for catastrophic illness promises to boost demand for health services still further. So could the extension of health insurance to the uninsured (FORTUNE, September 26). A rollback of ignorance would bring huge benefits. With better data, business could effectively challenge proposed treatments. Many doctors might enjoy better protection against malpractice suits. Patients could be the biggest gainers. If the pros and cons of alternative treatments were better known and conveyed in lay language—a rarity now—patients could have a real say in how they are scanned and sliced.

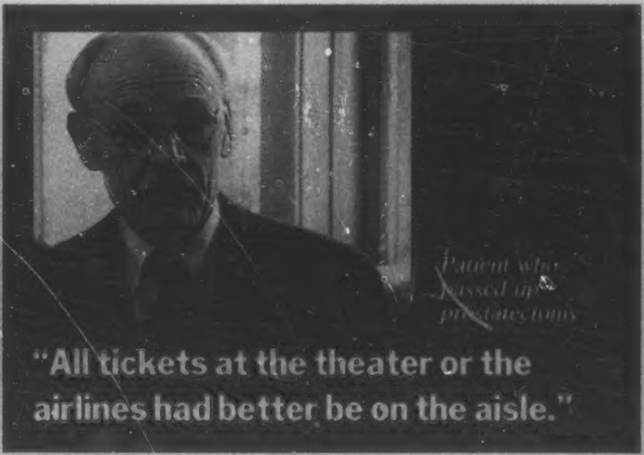
THE GROWTH of health maintenance organizations, whose membership has tripled to 31 million in the past six years, was supposed to supply much of the missing knowledge. Operating on a fixed "subscription" payment set annually for their members, HMOs have strong reasons to study their centralized patient files for ways to weed out wasteful procedures. Alas, such studies have not been extensive. Until recently, HMOs have managed to save plenty of money just by cutting down on hospital stays.

REPORTER ASSOCIATE *Reed Abelson*



Opening frame of a pioneering videodisc

"We'll tell you the harms and benefits, but you must decide."



Patient who passed up prostatectomy

"All tickets at the theater or the airlines had better be on the aisle."

TOO MUCH DOCTORING, SAY THE DOCTORS

PROCEDURE	"UNJUSTIFIED"	"DEBATABLE"
Coronary artery bypass (cost: $37,000)	14%	30%
Carotid endarterectomy ($9,000) Removal of deposits from clogged neck arteries	32%	32%
Pacemaker implants ($9,000)	20%	36%
Coronary angiography ($3,400) X-rays of heart arteries injected with dye	17%	9%
Upper gastrointestinal tract endoscopy ($750) Visual examination with fiber-optic device	17%	11%

SOURCES: RAND CORP.; DR. ALLAN M. GREENSPAN ET AL.; VALUE HEALTH SCIENCES

Big savings might result from better data on which patients really need fancy operations and tests. Panels of doctors developed the criteria upon which these findings are based.

That's particularly disappointing to Ellwood, 62, a witty, searingly insightful visionary who heads a medical think tank called InterStudy. He led the proselytizers when the concept of prepaid care was barely known in the early 1970s, and the very term HMO is his. But the rates at which HMO doctors perform various procedures, it turns out, are not so different than elsewhere. Caesareans and other debatable operations, moreover, are way up, just as they are in the country at large. "What HMOs haven't done, which I had hoped, is manage the *content* of medical care," Ellwood says. Why not? "HMO doctors are ignorant, just like all doctors."

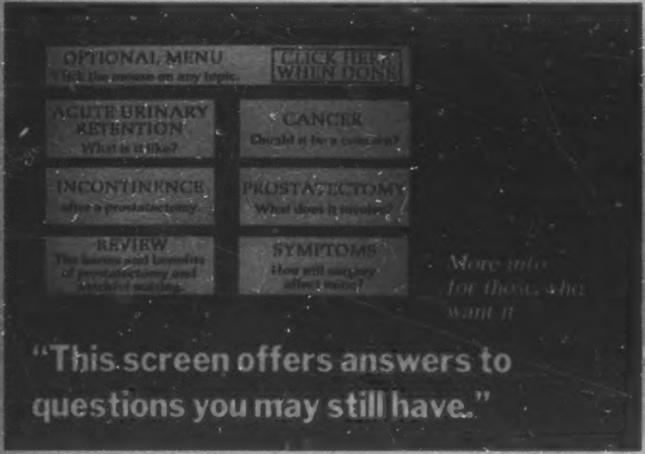
Having shaken up the medical system once, Ellwood seeks to do it again. He wants the records of millions of encounters between doctor and patient, whether in HMOs or in the traditional fee-for-service system, recorded in computers and the results of treatment routinely monitored through follow-up questionnaires to patients. "When we're spending a half trillion dollars a year on health care," Ellwood says, "we ought to know what works." Dr. Arnold S. Relman, editor of the influential *New England Journal of Medicine*, says that "assessments" and the general concern about quality are "the third revolution in medical care," the first being the spread of health insurance and the second the revolt of the payers. Physicians must be in charge of the third revolution, Relman says, for only they have the training.

Though better information could put an end to some fat fees, doctors are starting to rally behind the idea. Many fear a loathsome alternative: another round of heavy-handed cost controls imposed by nondoctors. Dr. William L. Roper, a pediatrician who runs the federal government's Medicare and Medicaid programs, adds that "those on the firing line want better information so they can do a better job for their patients."

MEDICAL RESEARCH is hardly in short supply. Teams of doctors report all the time on the success of this new operation or that diagnostic device. But the studies often leave important questions unanswered because the number of patients is small, the scope of inquiry narrow, or the methodology faulty.

Take the controversy on how to treat hardening of the leg arteries, which can turn walking to agony and lead to amputation. Doctors have four main alternatives: Do nothing, prescribe physical therapy and exercise, perform bypass surgery, or use a newer procedure called percutaneous transluminal angioplasty, or PTA—inserting a balloon and inflating it to clear the arteries. During a 1987 visit to Duke University's Center for Health Policy Research and Education, Dr. Raphael Adar, a prominent Israeli surgeon, pored over 39 papers on the use of PTA for the leg. As disclosed in a recent issue of *Health Affairs* magazine, Adar found all the studies deficient. Not even the better ones reported on the outcomes of greatest concern to patients: the relief of pain and the continued ability to walk.

"For people who read this kind of information, it's very frustrating," says Dr. David Eddy, a professor of health policy at Duke and a critic of much medical research. Meaningful numbers on the cost effectiveness of tests can also be hard to come by. When left in the dark, Eddy says, panels of doctors charged with evaluating the tests' usefulness fall back on their own best



"This screen offers answers to questions you may still have."

Patient who had prostatectomy

"Now I can put my initials in the snow!"

RICHARD HOWARD (4)

"When we're spending a half trillion a year on health care, we ought to know what works."

InterStudy's Dr. Paul M. Ellwood Jr.

STEVE WOIT-PICTURE GROUP

clinical impressions. One panel was asked to estimate the effect of a particular testing regimen—annual sigmoidoscopy and stool specimens—in reducing cancers of the colon and rectum, which annually take the lives of about 60,000 Americans. The answers ranged all the way from a 5% reduction in deaths to 95%.

Elsewhere, shafts of knowledge have begun to pierce the darkness. Financed primarily by foundation funds, Rand Corp., a research organization in Santa Monica, California, has looked into those carotid endarterectomies. First the researchers studied the literature and listed the hundreds of situations in which the treatment might help. Then they asked a panel of nine doctors to rate its appropriateness in each situation and reviewed the records of 1,302 Medicare patients in three areas who got the operation in 1981.

The conclusion, published earlier this year: Just over a third of the carotid endarterectomies were appropriate, while 32% were borderline. The other 32% should not have been performed, mainly because the symptoms did not seem serious enough to warrant the considerable risks. During the hospital stay, 3.4% of all the patients who got carotid endarterectomies died because of complications from the operation. Another 6.4% had strokes—just what they had hoped to avoid. The researchers recommended that the operation be curtailed.

Three other procedures have come under Rand's scrutiny. As the table on page 127 shows, the researchers found two diagnostic tests much in vogue to be overdone, though not as greatly as some critics assert. But Rand recently came down hard on coronary artery bypass surgery.

More than 230,000 Americans had coronary bypass operations last year, twice as many as in 1980. Few are life-and-death affairs performed on patients who have just had heart attacks. The aim generally is to relieve chest pain. Two alternatives—drugs and clearing the coronary arteries with an inserted balloon—are less costly and sometimes just as effective. Reviewing 386 bypass operations done in three hospitals in 1979, 1980, and 1982, Rand concluded that only 56% were clearly appropriate.

"Appropriateness" studies are a giant step forward, but they have limitations. They are based on what committees of specialists believe is the right time to test or operate. To *know* what works requires surveys of how patients made out later on—typically at least a year later. Contact with patients often ends when they walk out of the hospital or the doctor's office. Dr. John E. Wennberg, an epidemiologist at Dartmouth Medical School, made some fascinating discoveries in a follow-up study of men who underwent prostate operations.

WENNBERG, 54, has a quietly earnest manner that befits one with a sense of mission. Because doctors don't know the probable outcomes of one treatment vs. another, he says, medicine is in an "intellectual crisis." When studying health care patterns in rural New England in the 1970s, Wennberg was struck by significant variations in the rate at which doctors performed tonsillectomies, hysterectomies, and other operations. Later he found sharp differences in medical spending in Boston and New Haven, Connecticut. Though the health characteristics of both cities' populations are similar, Boston was spending the equivalent of 16% of GNP on medical care to New Haven's 9%.

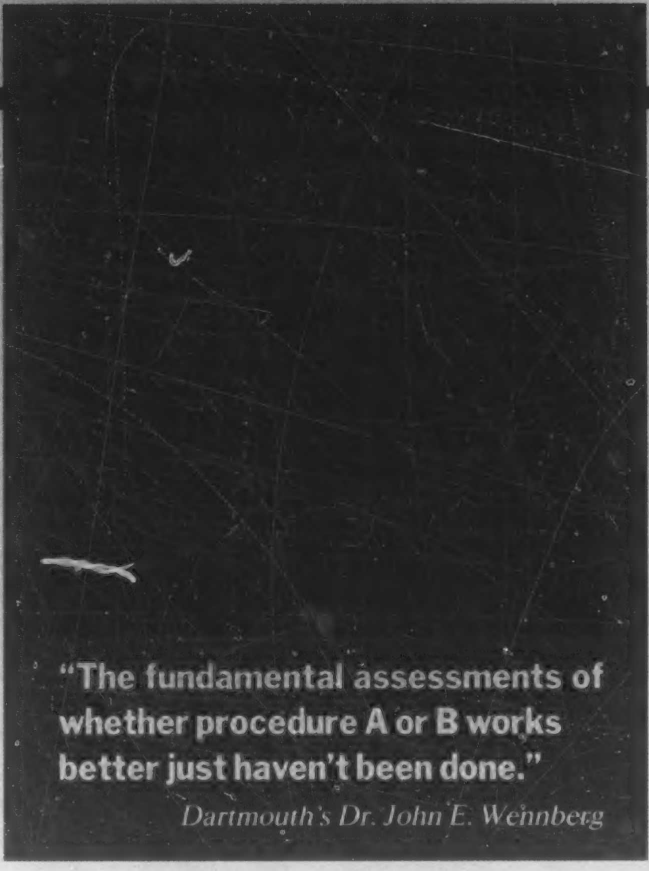
Prostate operations, which varied from place to place by a factor of four in the earlier New England study, provided an opportunity for Wennberg and his colleagues to pioneer. Few are performed to save a man's life; even cancer of the prostate is rarely fatal. But many physicians have long advised preventive surgery to avoid a greater risk when the man is older. More than 300,000 operations on benignly enlarged prostates were performed in the U.S. last year at a cost of about $3,500 each.

Two-thirds of Maine's practicing urologists agreed to participate in Wennberg's survey of patients getting prostatectomy operations, starting in mid-1983. Most of the patients were 65 and older. An initial interview detailing each man's symptoms was followed by another three months after surgery and telephone interviews after six and 12 months. The findings, based on 263 men who completed all three postoperative interviews, were published last spring in the *Journal of the American Medical Association*. The researchers found that the "preventive" argument for surgery is wrong, for the operation caused a slight decrease in life expectancy. It is justified solely, they concluded, for what physicians call quality-of-life reasons: The patient is having problems urinating.

For most of the men, the quality of life improved over a year: 78% reported mild or no symptoms and 16% moderate problems, leaving only 6% with serious symptoms. The results of the survey have been incorporated into a videodisc that will be tested before focus groups of doctors and patients this fall. Running 28 minutes, not counting additional information the viewer can select at the press of a button, the disc is a breakthrough in medical consumer information.

To background music, the title comes on screen: *CHOOSING—Prostatectomy or Watchful Waiting*. Dr. Charles Culver, a psychiatrist who serves as narrator, says the operation brings "improvement at a price.

continued



"The fundamental assessments of whether procedure A or B works better just haven't been done."

Dartmouth's Dr. John E. Wennberg

RICHARD HOWARD

We'll tell you the harms and benefits, but then you must decide." Four patients appear. One of two who agreed to the operation can scarcely contain his enthusiasm: "Now I can put my initials in the snow!" One who chose "watchful waiting" is asked whether his condition interferes with daily activities. His mildly jovial reply: "All tickets at the theater or the airlines had better be on the aisle."

While pointing out the advantages of the operation, the narrator cautions that the negatives must not be overlooked. Within three months of the operation, 8% of the men were back in the hospital with serious complications. Others encountered new difficulties: 4% of those who never had the problem became incontinent to some degree, and 5% of those who previously had erections became impotent. If the videodisc were generally available, many men would probably turn down the operation, particularly those who don't have severe problems.

Not too many years hence, Wennberg hopes, a typical doctor's office will have perhaps a score of videodiscs covering as many illnesses. To those accustomed to the dictatorial style of medicine, it might seem utopian to expect doctors to furnish information enabling patients to argue with them. But many doctors, particularly family physicians, might welcome the chance to help patients make up their minds. It's a safe bet, too, that payers would encourage the practice.

Wennberg favors a big increase in funding for a little-known federal agency called the National Center for Health Services Research and Health Care Technology Assessment. Despite the impressive name, its budget has declined since the 1970s, to $47 million. Wennberg and others want the figure boosted to at least $200 million. That would finance more studies like the one on prostatectomies. Says Wennberg, who notes that the drug industry spends billions evaluating its products: "The fundamental assessments of whether procedure A or B works better just haven't been done."

Ellwood has something far more ambitious in mind, which he calls "outcomes management." The health system would keep track of *all* patients and their progress after treatment. Initially the goal would be to track chronic illnesses whose treatment is of uncertain value. Doctors would constantly adjust their procedures in response to feedback on what works best, much as a retail chain adjusts its buying according to on-line data that show what is selling.

THE BEGINNINGS of such a system can already be discerned. Medicare boss Roper's outfit, the Health Care Financing Administration, has agreed to pay for pilot studies of outcomes management at ten Midwestern HMOs. Quality Quest, a subsidiary of Ellwood's InterStudy, will be in charge. One of the first tasks is to select a short, standardized "quality of life" questionnaire in which patients would describe their condition before treatment and later on. Such questionnaires, developed in the past few years by Boston psychometrician John E. Ware and others, include general queries on the patient's well-being and ability to function as well as some related to his specific illness. Sample question for a victim of heart disease: "Do you need to sleep sitting up at night?"

Ten other organizations are interested in financing pilot studies, among them the state of Massachusetts and the Blue Cross and Blue Shield Association in Chicago. When asked what he thinks of Ellwood's idea, the association's president, Bernard R. Tresnowski, responds, "Right on!"

"The health care system," Ellwood declares, "has become an organism desperately in need of a central nervous system that can help it cope with the complexities of modern medicine." Until a single national databank can be created, he would settle for a sharing of information among insurers and health organizations.

One of the biggest data pools is Health Information Reporting Co., set up three years ago by nine of the largest Blue Cross and Blue Shield plans and the national association to analyze payment and utilization trends among 15 million members. Another is the federal government, which has years of claims data covering 32 million Medicare recipients. In neither case are patients surveyed later on to gauge the effectiveness of treatments, though the Blues and Medicare are both interested in the idea. Data on patients' fates are already gathered, however, for some major illnesses. For example, the National Cancer Institute has access to data on more than a million patients, and a pool of data banks called Aramis tracks 28,000 arthritis victims. Some of the findings are available to the public.

Doctors' offices, which long ago turned to computers for billing, are still paper holdouts when it comes to maintaining patients' medical records. Many hospitals and health care organizations, on the other hand, have gone heavily electronic. Intermountain Health Care of Salt Lake City, which in 1975 took over hospitals formerly owned by the Mormon church, has created what may be the best computerized clinical database in the U.S. At some bedsides, doctors can call up a patient's history on terminals, including past test results and even recommended procedures. Dr. Brent James, who is director of medical research at Intermountain, plans to add follow-up surveys of discharged patients.

Computers already influence what doctors do. At Wishard Memorial Hospital in Indiana University's Indianapolis medical center, at least 400 doctors have access to computerized patient records. In an experiment at reducing blood tests in the mid-1980s, terminals began flashing information on the odds that each of eight common tests would reveal a suspected abnormality. Result: Billing for the eight tests dropped 9%.

United HealthCare, a Minneapolis firm that owns seven HMOs and provides contractual services to 16 others, maintains prescription records for two million people. About 500,000 live in the Twin Cities area, where pharmacies are tied into a computer network. When the computers spotted excessive use of diet pills a few years ago, the HMOs stopped paying for them and doctors cut down on prescribing them.

The next medical revolution will quickly sputter if it merely amasses information that doctors ignore. It's unlikely insurers will let that happen. Willis Goldbeck, president of the Washington Business Group on Health, a national organization of large companies with employee medical plans, says that "physicians will change their behavior if the new knowledge is tied to reimbursement."

SUCH TIES are already being forged. Citing Rand Corp.'s studies, California Blue Shield has decided to require a second opinion on carotid endarterectomies. One of Rand's senior researchers on the medical studies, Dr. Mark Chassin, has become senior vice president of a new company called Value Health Sciences, which is turning the Rand findings into a computer software program that insurers will be able to use as a cheaper alternative to a second doctor's opinion.

Thus the payers are using doctor-generated information to control what doctors receive. The implications cause a few shivers among physicians. Will medicine become a "cookbook" affair, with the treatment for each set of symptoms limited to what shows up on a computer screen? No two patients are alike, after all, and doctoring has always been a subtle blend of feel and fact. Roper, for one, doubts that cold science will eliminate the need for healing art. Airline pilots are required to follow all sorts of standard checkout procedures, he says, but flying the big ship still calls for experience. By putting as much uncertainty as possible behind them, doctors should find their calling more satisfying than ever.

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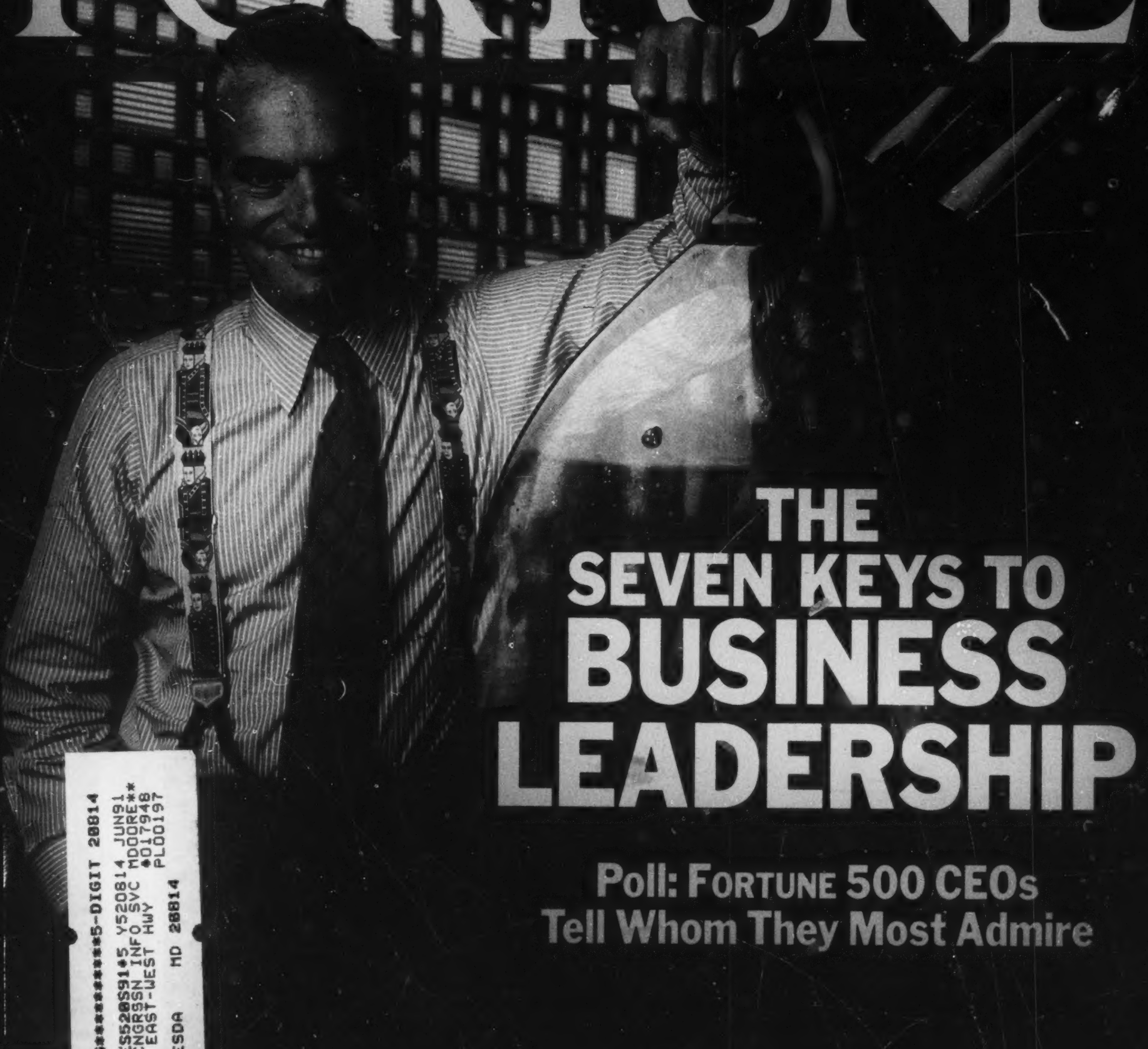

THE SEVEN KEYS TO BUSINESS LEADERSHIP

Poll: FORTUNE 500 CEOs Tell Whom They Most Admire

CEO Jamie Houghton has a clear vision for Corning Glass

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FORTUNE

HANS NELEMAN

Leaders shake things up, which may be one reason we don't have more of them.

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"China's open-door policy won't work unless we understand the mentality of foreigners and learn from them."

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"Why should I *always* win? Now I'll go back to my office, where the real games begin."

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"What Americans must appreciate is that the historic ideologies of the left and right are now irrelevant to the issues at stake."

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EDITOR'S DESK

ARE YOU UPSET? Angry? Apoplectic? Did that $499 whatzis go on the fritz as soon as you got it home? Will Whatzis Inc. fix the thing? Will Whatzis Inc. answer the phone? Does anybody at Whatzis Inc. give a rat's whisker?

Somebody better! Corporate America is getting the message that the fastest way to lose out to the competition is to ignore customer complaints. For the article beginning on page 88, writer Patricia Sellers tracked companies that pamper unhappy customers and those that disregard them. Her conclusion: Giving consumers an outlet to voice their grievances increases brand loyalty and raises profits. Even if a company can't satisfy the customer, just lending a sympathetic ear can win it a friend.

ANDY FREBERG

Patricia Sellers is not the complaining kind.

Having covered marketing since she joined FORTUNE four years ago, Sellers noticed a common thread of success connecting Anheuser-Busch, Kellogg, Liz Claiborne, and other industry leaders she has written about. These companies focus intently on their customers' desires and spare no effort trying to satisfy them. Until she came across a study showing that money invested in complaint handling earned fat returns, however, Sellers had not thought much about that aspect of customer service.

She began her reporting by asking friends, relatives, and colleagues to relay personal experiences. Horror stories flowed in about mail-order houses. The most positive responses involved credit card companies. Her cousin, for example, visited a seaside inn where he found the accommodations abysmal. He complained to American Express, which investigated and canceled the charge.

Though she has had her share of shabby treatment from airlines and hotels while traveling on assignment, Sellers tends not to complain. "I would be so aggravated," she says, "that I just wanted to forget the incident." She did squawk when she found cigarette ashes all over a table in a Cincinnati hotel room supposedly reserved for nonsmokers. The cordial letter she received from the Westin Hotel management charmed her: "I just appreciated getting a response that was not a bill."

While we wish it weren't so, FORTUNE is not immune to complaints from our readers, and we have stepped up efforts to resolve them. "In the past it was an area we had not emphasized with enough vigor," says publisher Jim Hayes. "Now customer satisfaction is a major strategic goal." We bought new computers to better handle the more than two million pieces of mail (subscription requests, payments, inquiries) we receive a year and to cut the time it takes to respond. All order forms have been revised to clarify subscription offers. One day soon you may hear from our circulation staff, which is developing a system to regularly telephone subscribers to ask how they rate our service. So far, our efforts have reduced the number of customer complaints substantially.

If you have a problem, please tell us. We want to keep your business.

EXECUTIVE EDITOR

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THE NO. 1 LEADER IS PETERSEN OF FORD

He tops the list of effective commanders cited by America's major CEOs. Most think their lieutenants will be ready for the Nineties—and at least as good as they are. ■ *by Kate Ballen*

WHOM DO America's top business leaders consider the most effective members of their brotherhood? When asked in the latest FORTUNE 500/CNN Moneyline CEO poll, executives mentioned more than 100 names. The winner, Ford Motor chief Donald E. Petersen, was a bit of a surprise, considering the vast amount of favorable publicity that has surrounded Detroit rival Lee A. Iacocca—whom Petersen beat by five votes. While these results suggest that no U.S. business chief currently towers above his peers, the outpouring of names is consistent with the poll's finding that eight out of ten CEOs consider American business in good hands. This sanguine bunch is also nearly unanimous in believing that their companies are bringing along at least as many productive leaders as a decade ago. Don't worry about finding natural-born leaders; these CEOs think it's possible to teach what it takes.

An independent opinion research firm, Clark Martire & Bartolomeo, conducted the survey from September 14 to 23. The respondents were 206 CEOs of FORTUNE 500 and Service 500 companies.

In voting for the most effective business leaders, the CEOs named a troika: Petersen, Iacocca, and GE's Jack Welch. After those three the number of votes for any candidate fell off sharply; another drop followed No. 10, Johnson & Johnson's James E. Burke. A significant number of CEOs (27%) didn't nominate anyone to the roster. Lawrence O. Kitchen of Lockheed probably speaks for many in this group when he says, "I don't want to shortchange anyone. Iacocca is obviously an effective leader, for example, but I know there are so many others out there who just don't have that publicity."

Q **Whom do you consider the most effective leaders in U.S. business?**

A

Don Petersen, Ford	**25%**
Lee Iacocca, Chrysler	**23%**
Jack Welch, GE	**20%**
John Reed, Citicorp	**11%**
John Akers, IBM	**11%**
Roy Vagelos, Merck	**7%**
Charles Knight, Emerson	**6%**
Ken Olsen, DEC	**5%**
John Young, Hewlett-Packard	**5%**
James Burke, J&J	**5%**

Total exceeds 100% because of multiple answers.

"The more my company grows, the more important I realize it is to spend time nurturing future leaders."

BRUCE E. KARATZ
Kaufman & Broad

A few CEOs seemed to have the opposite problem—thinking of anyone to mention. One cited the head of Alcoa but couldn't recall his name (it's Paul H. O'Neill); another had the same trouble remembering who runs Monsanto (Richard J. Mahoney). Two CEOs nominated Walter B. Wriston, even though he retired as chief of Citicorp in 1984. One cited Drew Lewis of Union Pacific, but another cited Drew Lewis of Warner Amex, a company Lewis left two years ago. And one chief nominated AT&T's James E. Olson, who died last April.

On the whole, of course, the CEOs are well acquainted with their counterparts, almost always referring to them familiarly—as Stan Gault of Rubbermaid, for example, or Larry Rawl of Exxon. The overwhelming majority (84%) say U.S. business does not face a leadership crisis, and they often cite this familiarity in explaining their views. "The colleagues I know have the qualities, intelligence, desire, and ability to move industry ahead," says Roger W. Johnson of Western Digital, a supplier of computer components. While many consultants and scholars worry that today's business chiefs aren't up to such challenges as global competition, takeover attempts, and restructurings, the CEOs interviewed often argue that these problems are making them tougher, more seasoned leaders. Says Stephen D. Hassenfeld of Hasbro: "It always takes events to push people."

"The leadership today isn't addressing the emerging world markets and competition."

JOHN O'BRIEN
Grumman

The CEOs of highflying companies are especially confident about the state of business leadership. Says Jack Twyman of Super Food Services, a distributor whose profits have more than tripled since 1980: "American enterprise has never been stronger." Howard P. Allen of Southern California Edison runs a standout utility in a sometimes troubled industry. "Sure, you have a number of utilities that are in financial difficulty with nuclear plants," he says. "Maybe the managers haven't done as good

---

REPORTER ASSOCIATE *Charles A. Riley II*

Q **Some expert critics claim there is a leadership crisis in U.S. business. Do you agree or disagree?**

A

Agree	12%
Disagree	84%
Not sure	4%

Q **Does your company employ as many effective leaders today as it did ten years ago?**

A

Yes	97%
No	0%
Not sure	3%

Q **Can effective business leadership qualities be taught?**

A

Yes	73%
No	10%
Some can, some can't	7%
Not sure	10%

a job as they should have, but the majority of utilities are in good shape charging reasonable rates to the public."

So why the talk about a business leadership crisis? Ask these CEOs and some of their responses verge on the passionate. Says Stanley M. Howe of HON Industries, an office furniture manufacturer: "Seldom does television show business leaders in a good light. We always seem to be characterized as crooks." Richard H. Deihl of savings and loan holding company H.F. Ahmanson adds, "We've got better management than ever. They may not be so visible, but it's more because they're afraid of what the media will do to them." Other CEOs chalk up the criticism to human nature. "People just like to criticize," says Edmund T. Pratt Jr. of Pfizer. Or as Edmund M. Carpenter of General Signal says, "It's always traditional to have curmudgeons say there's no one to lead us."

"In American business, if leaders don't become public personalities, then sometimes they are considered ineffective."

JOHN H. BRYAN
Sara Lee Corp.

Some of those curmudgeons are in executive suites. Of the CEOs polled, 12% believe U.S. business does face a leadership crisis. Among the reasons: managers' inability to compete in a global economy, too much focus on short-term results, and insufficient investment in plants. "The rest of the world is passing us by," says Kenneth W. Perry of American Petrofina. "I don't see any emerging leaders with the guidance to see us through the 1990s." Even optimists might shudder at what lies ahead after hearing W.R. Grace's J. Peter Grace: "I've been in business through the Thirties, Forties, Fifties, Sixties, and Seventies, and I have never seen such rapid-fire and pressure-filled changes in technology, in tempo of workplace, and in business fundamentals as in the past eight years or so. We do not have a big supply of the quality of leadership required in this new, competitive, global environment."

Nearly all the CEOs polled, 97%, think the quality of leaders in the pipeline is terrific. They say their companies employ as many effective business leaders as ten years ago, and 40% volunteered without any prompting from the pollsters that they think their companies have *more* effective leaders than a decade ago. "The young people we continue to attract are more intelligent, interesting, and willing to work than their predecessors," says Jerry V. Jarrett of Ameritrust. Observes David H. Swanson of Central Soya: "There are more quiet, more efficient people. There's more production and less flash."

COMPANIES THAT have been liberated from regulation see a particularly dramatic change. John C. Canepa of Old Kent Financial says, "When we were a highly regulated industry, being a banker was a no-brainer. The government made all the decisions for you. Now, because we've grown so much, we've decentralized and diffused management. There are leaders at every level." CEOs that have rethought corporate values also believe they have produced stronger leaders. "My company has more effective leaders as we've promoted the importance of long-range thinking," says Josh Weston of Automatic Data Processing. Adds William J. O'Brien of Hanover Insurance: "Building a company on vision and value fosters better leaders."

Almost three out of four CEOs agree that effective leadership can be taught. They cite rotating assignments, internal training, and increasing responsibilities as important schooling. "If you are born with reasonable skills, a real leader can emerge," says Hassenfeld of Hasbro. Arnold B. McKinnon of Norfolk Southern ebulliently explains how leader development has progressed at his company: "We've got a group of younger people coming along who have had a higher level of experience than we had, who were given major responsibility sooner than we were, and who are better prepared to take over." Lawrence Kitchen of Lockheed will retire this year and is spending his last few months on the job preparing his successor, Daniel M. Tellep. Says Kitchen: "One of a CEO's primary duties is to develop people who can move into the leadership position."

"Any CEO who has lived through the oil crisis . . . restructuring, or high inflation is either dead, retired, or tough enough to live through the next issues."

GREGORY EDWARDS

PIERSON M. GRIEVE
Ecolab

And by the way, just what does leadership mean? Some of the CEOs polled grow impatient when discussion lingers on the intangibles. Twyman of Super Food says, "You can cut through all the malarkey—performance is what determines whether you are effective." Raider Irwin L. Jacobs of Minstar concludes somewhat ominously: "Sooner or later, if a leader is not performing, it catches up with him. Shareholders no longer stand ineffectiveness." F

RETAILERS FLY INTO HYPERSPACE

The French created hypermarkets, and U.S. merchandisers wish they had kept them home. But consumers seem to like this jumbo addition to an already overbuilt industry. ■ *by Bill Saporito*

SOMETIME in the mid-1990s Americans will have just two gargantuan emporiums in which to shop. One will be east of the Mississippi River and one west, each extending over hundreds of miles and numerous states. Orange juice? "Just make a left at Wichita, ma'am; it's on the first aisle in Oklahoma."

Shoppers now traveling through the Bunyanesque, get-it-all-here stores known as hypermarkets already have the feeling. Consider: The establishment in northeast Philadelphia run by the French company Carrefour encompasses 330,000 square feet. That's enough for half a dozen football fields, give or take a hockey rink. To march up and down every aisle in pursuit of groceries, apparel, and other general merchandise involves a stroll of a mile or so.

Does retailing really need stores this size? Do we need the exercise? The candid response of most American retailers is "of course not." The amount of retail mall space dedicated to each person in the country has nearly doubled in ten years to about 14 square feet. There are already far too many stores for the available business, but that won't stop the big guys. Once in place, their tactic is to absorb so much business at one location as to prevent anyone else from coming in. There are only half a dozen hypermarkets currently operating and another dozen on the drawing boards. But they have the potential to change the way consumers shop for everything from soup to tires and to drastically alter the retail landscape in large and small cities alike.

Shoppers stand to gain because the hypermarket is a more efficient retail engine. Since the engine weighs a ton and costs a bundle, hypermarkets play to the strengths of big store operators like K mart, Wal-Mart, and Super Valu. Wal-Mart, run with revivalist fervor by Arkansas billionaire Sam Walton, is now singing hallelujah about the company's two Hypermart USA stores in the Dallas area, run in partnership with Cullum Cos., a well-known Texas grocer. The marts are shoving merchandise through the checkouts at the rate of $130 million to $150 million yearly, double that of any large discount store. "The volume was beyond our wildest expectations," says

REPORTER ASSOCIATE *Mark Alpert*

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19 19
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FIRE
93¢

Everything but the kitchen sink

Tom Hairston, president of Cullum.

Hypermarkets were created by French merchants after World War II out of a need for efficient distribution among the ruins. Companies like Auchan, Carrefour, Euromarché, Leclerc, and Promodes then expanded across Europe until they ran out of room. Four years ago the French looked west toward the States. A partnership called Hyper Shoppes that includes Super Valu, French real estate developers, and Euromarché opened Bigg's in Cincinnati. "The Europeans see the U.S. as the last oasis of unfettered free enterprise," says Peter Monash, a retailing consultant who has worked both sides of the Atlantic. He expects blood to run in the streets when the giants meet head-on.

Super Valu, the nation's second-biggest grocery wholesaler, initially tried persuading its partners to open a franchise of its low-cost Cub Foods supermarkets. The French insisted on selling general merchandise, too. *Voilà* Bigg's. Although sales averaged $1.5 million a week, nearly double the volume at a Cub store, profits were nonexistent. Consumers who loved the low food prices weren't buying much else. After the company made adjustments in its general merchandise, consumers adjusted their shopping habits. Now profitable, Bigg's opened a second location in the Cincinnati area this year. Denver is next.

Super Valu, which also owns the ShopKo discount chain, will go solo with its own hypermarket version, called Twin Valu, in northern Ohio next year. K mart will open a hyperstore called American Fare in Atlanta in early 1989 in partnership with a regional grocer, Bruno's Inc. Carrefour, with 115 hypermarkets in Europe and South America, opened its Philadelphia store last February and plans another store on Long Island. Auchan, operator of 50 hypermarkets and other retailing ventures in Europe, will debut in Houston and Chicago.

Until recently Americans have been reluctant players in the hyper competition because of the strong presence here of large supermarkets and discount stores, and even combinations of the two. While hypermarkets also include elements of supermarkets and discount stores, there are distinct differences. The ceilings are high, but in contrast to warehouse stores, the shelves don't rise much beyond seven or eight feet, giving hypermarkets the vast, see-it-all look of a discount store. The grocery aisles are designed for efficiency: Canned goods are usually sold from their cut-open cartons. Along the perimeter, however, shoppers can buy items normally sold in fancier stores: lobsters, croissants, and tortellini salad. A battery of 60 checkout lanes stands in broad testament to the stores' sales ambitions. Many hypermarkets are so big that stock clerks wear roller skates to get around.

The merchandise, market position, and operating economics of hypermarkets are unique and decidedly risky (see table). A typical discount store carries 80,000 items,

These are a few of the 57 registers at a Bigg's hypermarket in Cincinnati. The Franco-American partnership runs two marts and has another planned.

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womens
24 24
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HENRY GROSKINSKY (2)

from screws to sledgehammers, and a big supermarket stocks 30,000. A typical hypermarket will lay in a maximum of 50,000 items. The stated strategy is to have on hand the products that represent 80% of consumers' regular needs and to avoid specialty or slow-moving items in all categories. That means, for instance, stocking golf balls but not golf clubs, refrigerators but not trash compactors, and only the six best-selling flavors of yogurt.

No one is sure what combinations of goods and service produce the most sales, and several of the foreign firms have struggled to find out. Bigg's, for example, had too many similar items at different prices. It did not make money until it simplified pricing to help consumers focus on value and discontinued merchandise, like suits, that required a large inventory and personal selling. According to trade reports, Carrefour may be having similar problems.

The distinction that Bigg's and others are trying to draw between themselves and discounters is that hypermarkets are not blue-collar stores. Says Pierre Wevers, executive vice president of Hyper Shoppes: "What one usually calls discount is downscale merchandise. The hypermarket doesn't do that." In fact, the merchandise is distinctly tailored to attract the middle- and upper-income crowd. A discount store's focus on value is represented by an absolute low price: $8 store-brand jeans. Those won't fly in hyperspace. Only brand-name apparel will do—Guess Jeans, for instance, or Arrow shirts, at prices lower than those of any other competing store. At the same time, hypermarkets avoid being too fashionable because the inventory requirements and risks are too large.

Operators of hypermarkets may be cashing in on what some analysts see as a division of stores into two types. The first is the niche store that concentrates on specialized merchandise—say, high-fashion apparel for career women. Typically, the merchandise is expensive and makes a personal statement about the buyer. The second category is ever larger but fewer retail outlets for items that can be classified as commodities: food, basic apparel, housewares. Consultants refer to the concept as "the polarity of retail trade." Linda Hyde of Management Horizons, a Dublin, Ohio, consulting firm owned by Price Waterhouse, says hypermarkets are trying to move more items toward the commodity end of the pole.

At Hypermart USA's first store in Garland, Texas, clerks were spending 400 hours a week just collecting carts in the parking lot.

THEY ARE also taking the cost structure of big stores to new lows. Their magnet is bargain-priced food. Although it fills only 40% of the space in most hypermarkets, food represents 60% of revenues, mainly because it sells at a gross profit margin of 10%, less than half the figure at a traditional supermarket. The gross profit margin for the entire store is about 15%—ten percentage points below the discount or supermarket range. (An item that costs $1 must sell for $1.18 to achieve a 15% gross.) Similarly, the labor cost must be about 5% of sales, half what a typical K mart spends on labor.

These kinds of operating standards, difficult in their own right, create huge logistical challenges given the size of the stores. Says Larry Parkin, executive vice president of K mart: "If you blow it, you are going to blow it big." Running 60 checkout lanes—a $600,000 investment—and stocking the floor require a staff of 600 to 700, most of whom are part time. That's a scheduling nightmare only a computer can figure out. And, of course, about 50,000 real live customers stream through the store each week. What a pain. At Hypermart USA's first store in Garland, Texas, clerks were spending 400 hours a week just collecting carts. (The solution: Charge a deposit, payable when the carts are returned to the corral.)

The size-is-all game has implications for the rest of retailing. Supermarket chains such as Kroger, whose standard for new stores was 44,000 square feet in 1983, now go as high as 69,000 square feet. The new stores become profitable in half the time of earlier models. Accordingly, Kroger plans to build fewer but bigger stores. (Those plans may change; see News/Trends.) K mart is launching a sporting goods chain called Sports Giant, whose 50,000-square-foot size will make it a center to the competition's guards.

Even in its traditional discount business K mart thinks bigger is better. On average, an 80,000-square-foot store outperforms one of 40,000 square feet. And in communities where a 40,000-square-foot K mart used to do quite nicely, it will do no more. Says Parkin: "You can have a small store in the right community and have no competition and do gangbusters, but that's not going to continue. Somebody's going to put in a bigger store."

That other somebody might be Wal-Mart. Mr. Sam has signaled his intention in Washington, Missouri (pop. 18,000). Washington used to have a 50,000-square-foot Wal-Mart. This year Sam replaced it with a 120,000-square-foot edifice called Supercenter. It's a hypermarket for Main Street. Wear comfortable shoes. ∎

MACROECONOMICS: HOW RETAILING'S HYPERSIZED LOOK STACKS UP

Store	Size (square feet)	Weekly sales	Items stocked	Gross profit margin	Customers per week	Average purchase	Labor cost (% of sales)	Inventory (annual turns)
Hypermarket	**200,000**	$1,750,000	50,000	15%	50,000	$35	5.0%	13
Wholesale Club	**100,000**	$1,000,000	4,500	11%	14,500	$70	4.5%	16
Discount Store	**65,000**	$150,000	80,000	28%	9,500	$16	10.0%	4
Supermarket	**39,000**	$250,000	30,000	24%	15,500	$16	12.5%	26

SOURCES: WILLARD BISHOP CONSULTING ECONOMISTS LTD.; CORNELL UNIVERSITY; DISCOUNT MERCHANDISER, JUNE 1988; MANAGEMENT HORIZONS; FORTUNE ESTIMATES